

=&gt; dis 120 1-2 abs ibib hitstr

L20 ANSWER 1 OF 2 HCAPLUS COPYRIGHT 2007 ACS on STN

AB Cosmetics contain reaction products (number-average mol. weight 1000-1,000,000) of

(A) CH<sub>2</sub>:CR<sub>1</sub>[CO<sub>2</sub>(CH<sub>2</sub>)<sub>3</sub>]<sub>n</sub>SiR<sub>2</sub>R<sub>3</sub>R<sub>4</sub> (I; R<sub>1</sub> = H, Me; R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub> = C<sub>1</sub>-10 alkyl, alkoxy, alkoxycarbonyl; n = 0, 1; when n = 0 then R<sub>1</sub> = H), (B) di(fluoroalkanoyl) peroxides C<sub>3</sub>F<sub>7</sub>O(C<sub>3</sub>F<sub>6</sub>O)<sub>l</sub>CF(CF<sub>3</sub>)CO<sub>2</sub>OCOCF(CF<sub>3</sub>)(OC<sub>3</sub>F<sub>6</sub>)<sub>m</sub>OC<sub>3</sub>F<sub>7</sub> (II; l, m = 0-8) or X(CF<sub>2</sub>)<sub>p</sub>CO<sub>2</sub>OCO(CF<sub>2</sub>)<sub>q</sub>X (X = F, H, Cl; p, q = 1-10), and (C) ≤50 mol% (to I) other copolymerizable compds. at B:A = 1:0.1-1:5000 (by mol). A hair spray containing 3 weight% a reaction product

(average

mol. weight 8200) of CH<sub>2</sub>:CHSi(OMe)<sub>3</sub> with II (l = m = 1) at the mol ratio of 1:0.02, was provided.

ACCESSION NUMBER: 1995:879270 HCAPLUS

DOCUMENT NUMBER: 123:296240

TITLE: Cosmetics containing products of silicon compounds with di(fluoroalkanoyl) peroxides

INVENTOR(S): Yasukochi, Tooru; Shimada, Masahiko; Ishizaki, Koji

PATENT ASSIGNEE(S): Nippon Oils &amp; Fats Co Ltd, Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 07206628	A	19950808	JP 1994-19800	19940121
PRIORITY APPLN. INFO.: IT 169767-53-7			JP 1994-19800	19940121

RL: CAT (Catalyst use); USES (Uses)

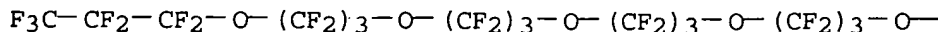
(reactive radical polymerization initiator; hair and skin cosmetics containing

copolymers of silicon compds.)

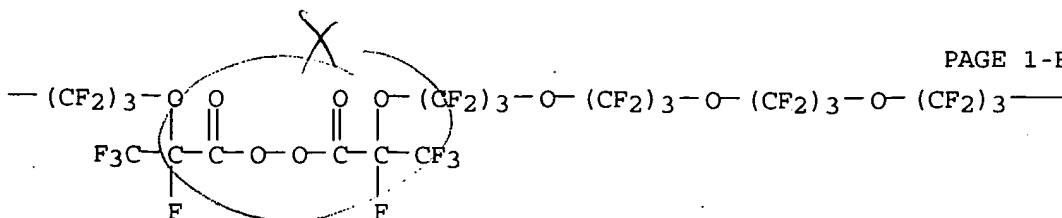
RN 169767-53-7 HCAPLUS

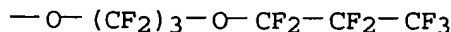
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PAGE 1-A



PAGE 1-B





L20 ANSWER 2 OF 2 HCAPLUS COPYRIGHT 2007 ACS on STN

AB Cosmetics contain reaction products (number-average mol. weight 1000-1,000,000) of

(A)  $R_1O(A_1O)nR_2$  [I;  $A_1O = \geq 1$  kinds of C2-18 oxyalkylene;  $A_1O$  may form block or random addition products when  $A_1O$  is a mixture of  $\geq 2$  kinds of oxyalkylene;  $R_1 =$  C3-5 unsatd. hydrocarbon;  $R_2 =$  H,  $Me_3Si$ ,  $(MeO)_3Si$ , C1-24 hydrocarbon, acyl;  $n$  (average mol number of oxyalkylene added) = 0-1000],  
 (B) di(fluoroalkanoyl) peroxides  $C_3F_7O(C_3F_6O)_lCF(CF_3)CO_2OCOCF(CF_3)(OC_3F_6)_mOC_3F_7$  [II;  $l, m$  (average mol number of hexafluoropropylene added) = 0-8] or  $X(CF_2)_pCO_2OCO(CF_2)_qX$  ( $X =$  F, H, Cl;  $p, q = 1-10$ ), and (C)  $\leq 50$  mol% (to I) other copolymerizable compds. at B:A = 1:0.1-1:5000 (by mol). A hair spray contains 3 weight% reaction product (number-average mol. weight

2300) of

1:0.1 (by mol)  $CH_2:CHCH_2(C_2H_4O)_3Me_3$  with II ( $l = m = 1$ ).

ACCESSION NUMBER: 1995:879269 HCAPLUS

DOCUMENT NUMBER: 123:321696

TITLE: Cosmetics containing reaction products of polyoxyalkylene alkenyl ethers with fluoroalkanoyl peroxides

INVENTOR(S): Yasukochi, Tooru; Shimada, Masahiko; Ishizaki, Koji; Takabayashi, Tamayo

PATENT ASSIGNEE(S): Nippon Oils &amp; Fats Co Ltd, Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 07206627	A	19950808	JP 1994-19799	19940121
PRIORITY APPLN. INFO.:			JP 1994-19799	19940121

IT 169767-53-7

RL: CAT (Catalyst use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)

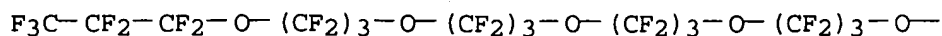
(reactive radical polymerization initiator; hair and skin cosmetics containing

reaction products of polyoxyalkylene alkenyl ethers, di(fluoroalkanoyl) peroxides)

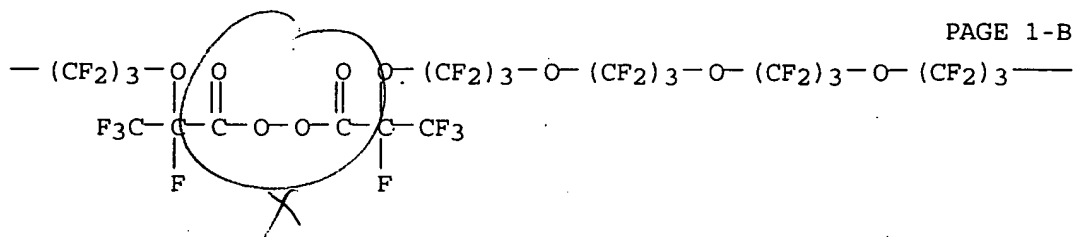
RN 169767-53-7 HCAPLUS

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 hexaheptacontafluoro-26,29-dioxo-25,30-bis(trifluoromethyl)- (9CI) (CA  
 INDEX NAME)

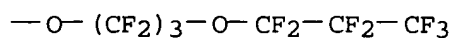
PAGE 1-A



PAGE 1-B



PAGE 1-C



=> dis his

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FILE 'REGISTRY' ENTERED AT 08:21:52 ON 23 JAN 2007

L1 STRUCTURE UPLOADED

L2 8 S L1 SSS SAM

L3 164 S L1 SSS FULL

FILE 'HCAPLUS' ENTERED AT 08:25:47 ON 23 JAN 2007

L4 41 S L3/PREP

SAVE L1-L4 PFPE1/L

L5 STRUCTURE UPLOADED

S L5

FILE 'REGISTRY' ENTERED AT 08:50:54 ON 23 JAN 2007

L6 0 S L5 SSS SAM

FILE 'HCAPLUS' ENTERED AT 08:50:55 ON 23 JAN 2007

L7 0 S L6 SSS SAM

S L5

FILE 'REGISTRY' ENTERED AT 08:51:05 ON 23 JAN 2007

L8 0 S L5 SSS FULL

FILE 'HCAPLUS' ENTERED AT 08:51:07 ON 23 JAN 2007

L9 0 S L8 SSS FULL

FILE 'HCAPLUS' ENTERED AT 08:51:21 ON 23 JAN 2007

L10 0 S L9

FILE 'REGISTRY' ENTERED AT 08:55:41 ON 23 JAN 2007

L11 STRUCTURE UPLOADED

FILE 'REGISTRY' ENTERED AT 09:00:27 ON 23 JAN 2007

L12 STRUCTURE UPLOADED

10813525 PTFE L16 2hits

L13 0 S L12 SSS SAM  
L14 0 S L12 SSS FULL

FILE 'HCAPLUS' ENTERED AT 09:01:44 ON 23 JAN 2007  
L15 0 S L14

FILE 'REGISTRY' ENTERED AT 09:06:49 ON 23 JAN 2007  
L16 STRUCTURE UPLOADED  
L17 0 S L16 SSS SAM  
L18 1 S L16 SSS FULL

FILE 'HCAPLUS' ENTERED AT 09:08:11 ON 23 JAN 2007  
L19 0 S L18/PREP  
L20 2 S L18

=> sav 11-120  
ENTER NAME OR (END):ptfe2/1

10/813925

10813525 PTFE

L5  $r=3$ ;  $A = \text{O}(\text{C}_2\text{F}_4-\text{O})_x$  no hits

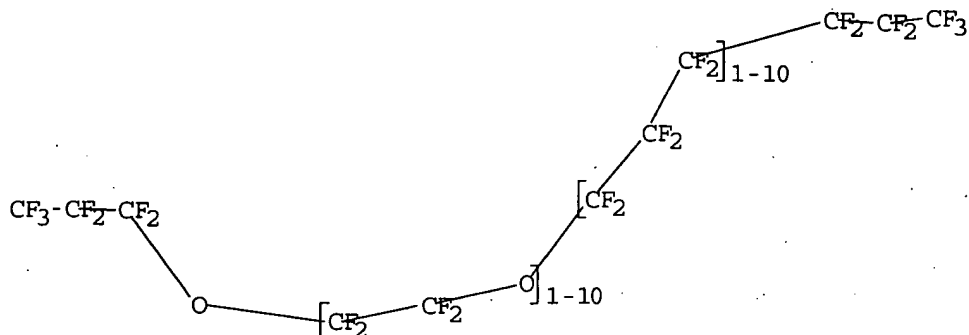
Uploading C:\Program Files\Stnexp\Queries\2007 cases\10813525\third (L10) PTFE  
formula.str

L11 STRUCTURE UPLOADED

=&gt; d l11

L11 HAS NO ANSWERS

L11 STR



Structure attributes must be viewed using STN Express query preparation.

=&gt; s l11 sss sam

STRUCTURE TOO LARGE - SEARCH ENDED

A structure in your query is too large. You may delete  
attributes or atoms to reduce the size of the structure  
and try again.

=&gt; dis his

(FILE 'HOME' ENTERED AT 08:21:40 ON 23 JAN 2007)

FILE 'REGISTRY' ENTERED AT 08:21:52 ON 23 JAN 2007

L1 STRUCTURE UPLOADED

L2 8 S L1 SSS SAM

L3 164 S L1 SSS FULL

FILE 'HCAPLUS' ENTERED AT 08:25:47 ON 23 JAN 2007

L4 41 S L3/PREP

SAVE L1-L4 PFPE1/L

L5 STRUCTURE UPLOADED

S L5

FILE 'REGISTRY' ENTERED AT 08:50:54 ON 23 JAN 2007

L6 0 S L5 SSS SAM

FILE 'HCAPLUS' ENTERED AT 08:50:55 ON 23 JAN 2007

L7 0 S L6 SSS SAM

S L5

FILE 'REGISTRY' ENTERED AT 08:51:05 ON 23 JAN 2007

L8 0 S L5 SSS FULL

FILE 'HCAPLUS' ENTERED AT 08:51:07 ON 23 JAN 2007

10813525 PTFE

L9 0 S L8 SSS FULL

FILE 'HCAPLUS' ENTERED AT 08:51:21 ON 23 JAN 2007

L10

0 S L9

FILE 'REGISTRY' ENTERED AT 08:55:41 ON 23 JAN 2007

L11

STRUCTURE UPLOADED

=>

10813525 PTFE L12 no hits

$r=3$  ;  $A = 0(C_2F_4O) \times (C_3F_6-O)_y$

FILE 'HCAPLUS' ENTERED AT 09:01:44 ON 23 JAN 2007

=> s l14

L15 0 L14

=> dis his

(FILE 'HOME' ENTERED AT 08:21:40 ON 23 JAN 2007)

FILE 'REGISTRY' ENTERED AT 08:21:52 ON 23 JAN 2007

L1 STRUCTURE UPLOADED  
L2 8 S L1 SSS SAM  
L3 164 S L1 SSS FULL

FILE 'HCAPLUS' ENTERED AT 08:25:47 ON 23 JAN 2007

L4 41 S L3/PREP  
SAVE L1-L4 PFPE1/L  
L5 STRUCTURE UPLOADED  
S L5

FILE 'REGISTRY' ENTERED AT 08:50:54 ON 23 JAN 2007

L6 0 S L5 SSS SAM

FILE 'HCAPLUS' ENTERED AT 08:50:55 ON 23 JAN 2007

L7 0 S L6 SSS SAM  
S L5

FILE 'REGISTRY' ENTERED AT 08:51:05 ON 23 JAN 2007

L8 0 S L5 SSS FULL

FILE 'HCAPLUS' ENTERED AT 08:51:07 ON 23 JAN 2007

L9 0 S L8 SSS FULL

FILE 'HCAPLUS' ENTERED AT 08:51:21 ON 23 JAN 2007

L10 0 S L9

FILE 'REGISTRY' ENTERED AT 08:55:41 ON 23 JAN 2007

L11 STRUCTURE UPLOADED

FILE 'REGISTRY' ENTERED AT 09:00:27 ON 23 JAN 2007

L12 STRUCTURE UPLOADED  
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L14 0 S L12 SSS FULL

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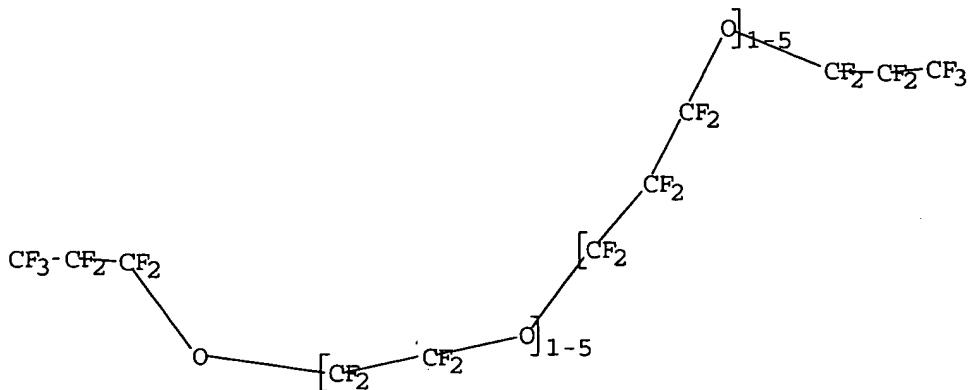
L15 0 S L14

=> dis l12

L12 HAS NO ANSWERS

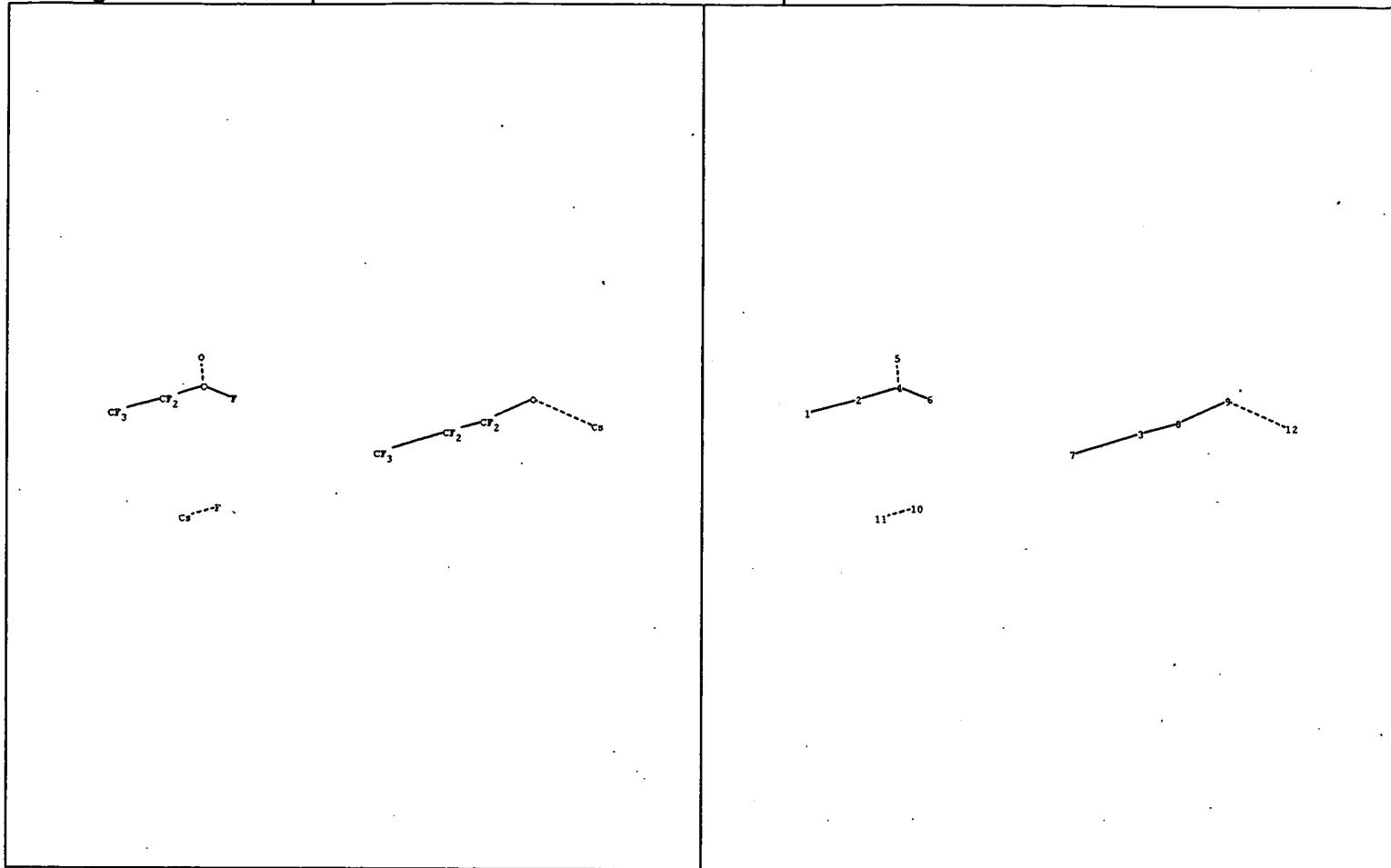
L12 STR

10813525 PTFE L12 no hits



Structure attributes must be viewed using STN Express query preparation.





chain nodes :

1 2 3 4 5 6 7 8 9 10 11 12

chain bonds :

1-2 2-4 3-7 3-8 4-5 4-6 8-9 9-12 10-11

exact/norm bonds :

4-5 9-12 10-11

exact bonds :

1-2 2-4 3-7 3-8 4-6 8-9

Match level :

1:CLASS2:CLASS3:CLASS4:CLASS5:CLASS6:CLASS7:CLASS8:CLASS9:CLASS10:CLASS11:CLASS12:CLASS

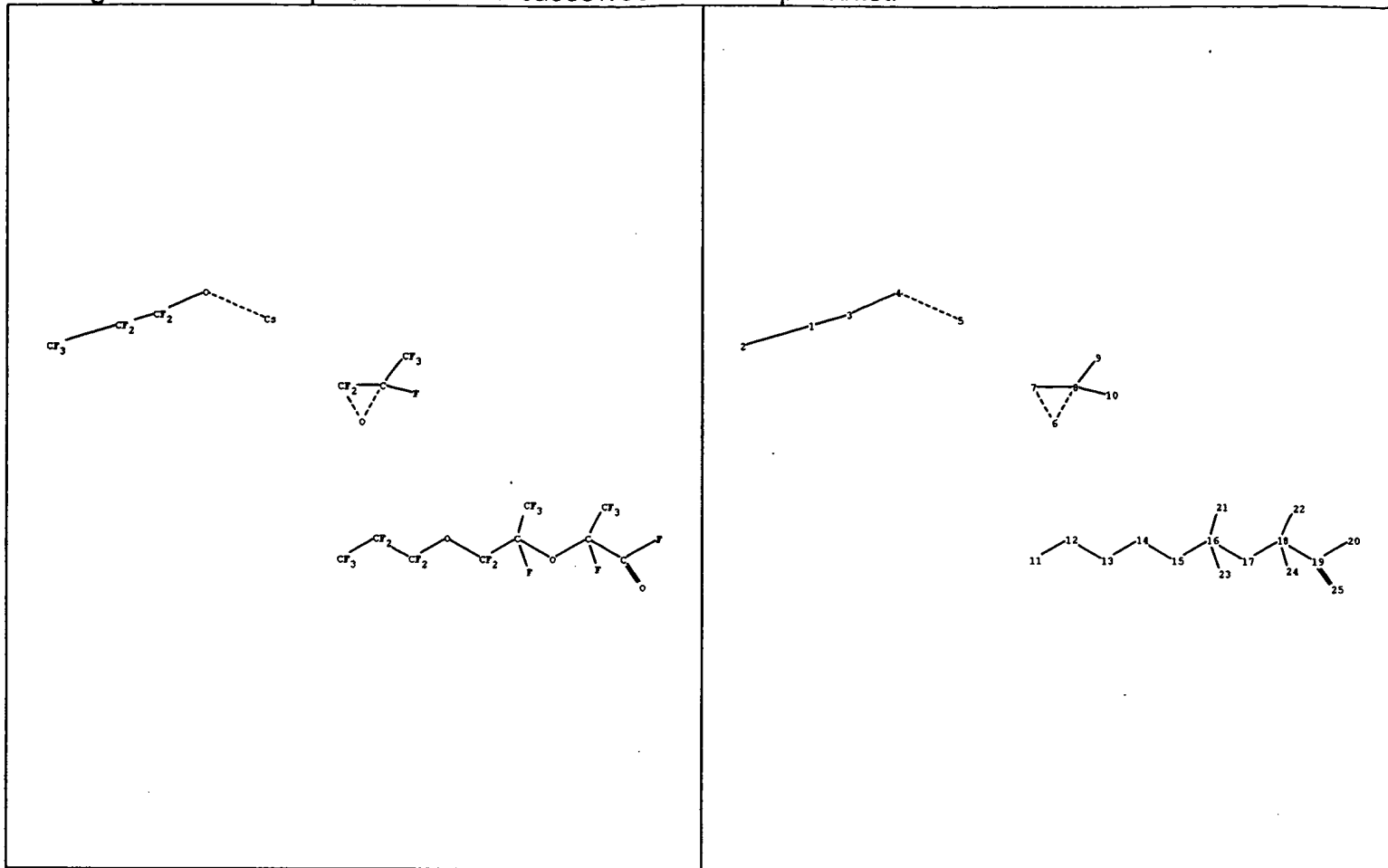
fragments assigned product role:

containing 3

fragments assigned reactant/reagent role:

containing 1

containing 10



chain nodes :

1 2 3 4 5 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

ring nodes :

6 7 8

chain bonds :

1-2 1-3 3-4 4-5 8-9 8-10 11-12 12-13 13-14 14-15 15-16 16-17 16-21 16-23 17-18 18-19  
18-22 18-24 19-20 19-25

ring bonds :

6-7 6-8 7-8

exact/norm bonds :

4-5 6-7 6-8 7-8 16-17 17-18 19-25

exact bonds :

1-2 1-3 3-4 8-9 8-10 11-12 12-13 13-14 14-15 15-16 16-21 16-23 18-19 18-22 18-24 19-20

Match level :

1:CLASS2:CLASS3:CLASS4:CLASS5:CLASS6:Atom 7:Atom 8:Atom 9:CLASS10:CLASS11:CLASS  
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22:CLASS23:CLASS24:CLASS25:CLASS

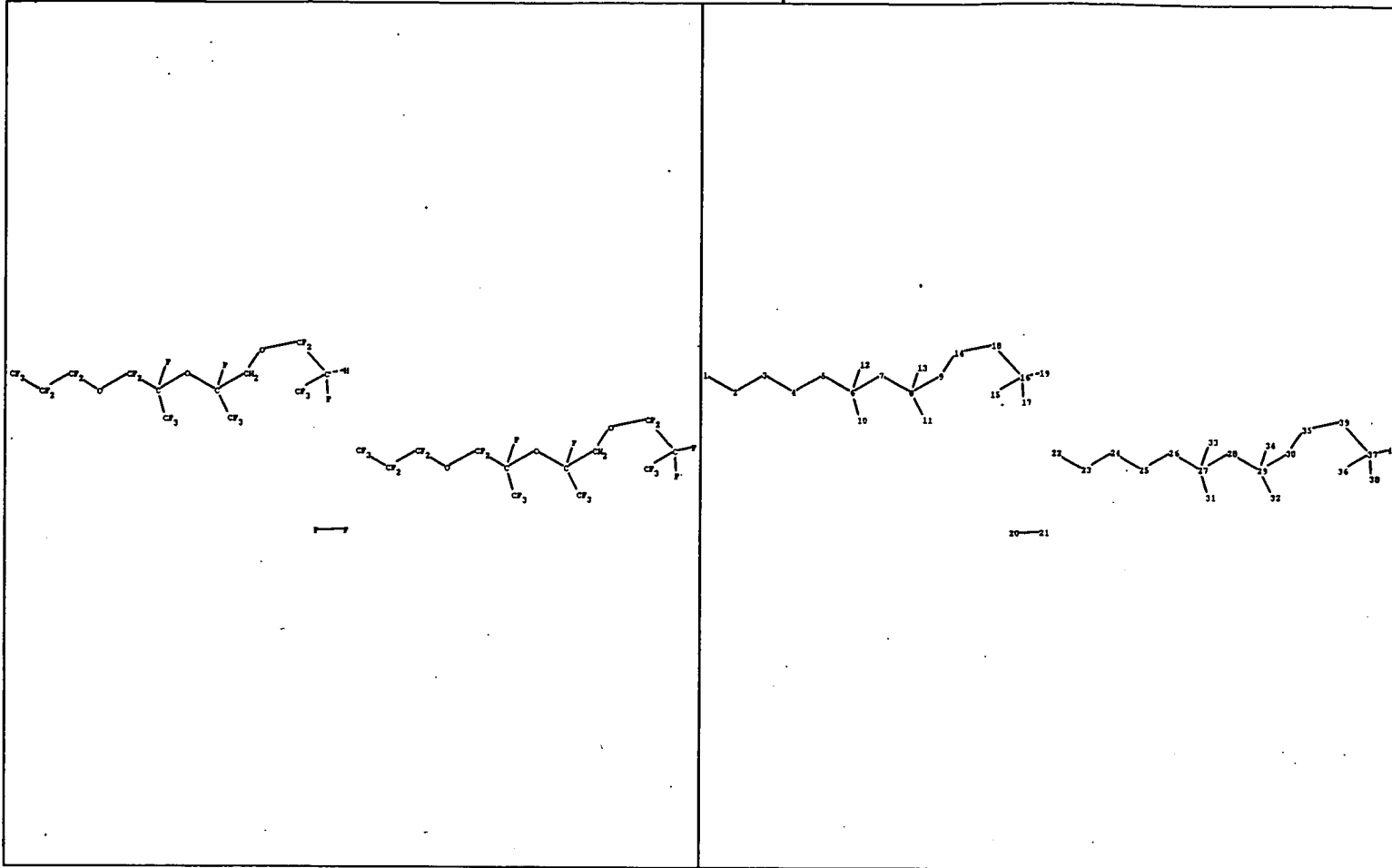
fragments assigned product role:

containing 11

fragments assigned reactant/reagent role:

containing 1

containing 6



chain nodes :

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28  
29 30 31 32 33 34 35 36 37 38 39 40

chain bonds :

1-2 2-3 3-4 4-5 5-6 6-7 6-10 6-12 7-8 8-9 8-11 8-13 9-14 14-18 15-16 16-17 16-18  
16-19 20-21 22-23 23-24 24-25 25-26 26-27 27-28 27-31 27-33 28-29 29-30 29-32 29-34  
30-35 35-39 36-37 37-38 37-39 37-40

exact/norm bonds :

6-7 7-8 16-19 27-28 28-29

exact bonds :

1-2 2-3 3-4 4-5 5-6 6-10 6-12 8-9 8-11 8-13 9-14 14-18 15-16 16-17 16-18 20-21 22-23  
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37-40

Match level :

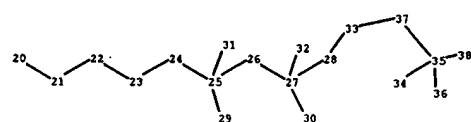
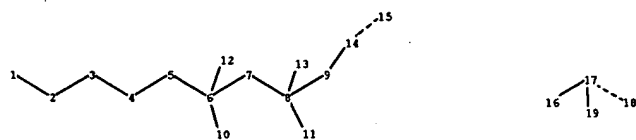
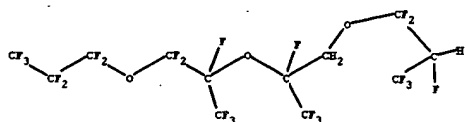
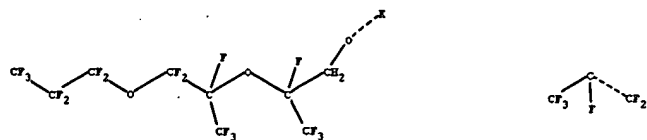
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22:CLASS23:CLASS24:CLASS25:CLASS26:CLASS27:CLASS28:CLASS29:CLASS30:CLASS31:CLASS  
32:CLASS33:CLASS34:CLASS35:CLASS36:CLASS37:CLASS38:CLASS39:CLASS40:CLASS

fragments assigned product role:

containing 22

fragments assigned reactant/reagent role:

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chain nodes :

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28  
29 30 31 32 33 34 35 36 37 38

chain bonds :

1-2 2-3 3-4 4-5 5-6 6-7 6-10 6-12 7-8 8-9 8-11 8-13 9-14 14-15 16-17 17-18 17-19  
20-21 21-22 22-23 23-24 24-25 25-26 25-29 25-31 26-27 27-28 27-30 27-32 28-33 33-37  
34-35 35-36 35-37 35-38

exact/norm bonds :

6-7 7-8 14-15 17-18 25-26 26-27

exact bonds :

1-2 2-3 3-4 4-5 5-6 6-10 6-12 8-9 8-11 8-13 9-14 16-17 17-19 20-21 21-22 22-23 23-24  
24-25 25-29 25-31 27-28 27-30 27-32 28-33 33-37 34-35 35-36 35-37 35-38

Match level :

1:CLASS2:CLASS3:CLASS4:CLASS5:CLASS6:CLASS7:CLASS8:CLASS9:CLASS10:CLASS11:CLASS  
12:CLASS13:CLASS14:CLASS15:CLASS16:CLASS17:CLASS18:CLASS19:CLASS20:CLASS21:CLASS  
22:CLASS23:CLASS24:CLASS25:CLASS26:CLASS27:CLASS28:CLASS29:CLASS30:CLASS31:CLASS  
32:CLASS33:CLASS34:CLASS35:CLASS36:CLASS37:CLASS38:CLASS

fragments assigned product role:

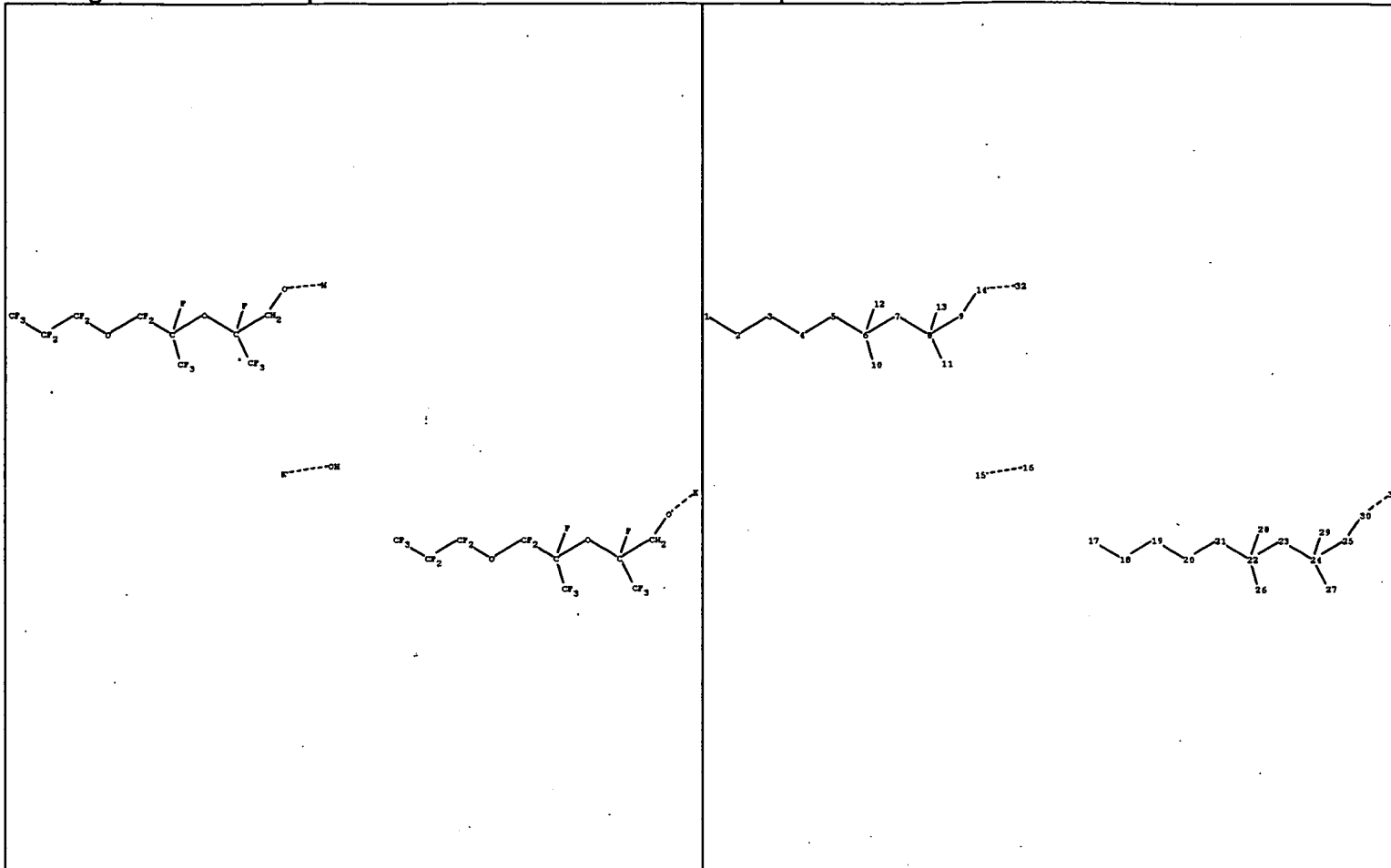
containing 20

fragments assigned reactant/reagent role:

containing 1

containing 16

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chain nodes :

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28  
29 30 31 32

chain bonds :

1-2 2-3 3-4 4-5 5-6 6-7 6-10 6-12 7-8 8-9 8-11 8-13 9-14 14-32 15-16 17-18 18-19  
19-20 20-21 21-22 22-23 22-26 22-28 23-24 24-25 24-27 24-29 25-30 30-31

exact/norm bonds :

6-7 7-8 14-32 15-16 22-23 23-24 30-31

exact bonds :

1-2 2-3 3-4 4-5 5-6 6-10 6-12 8-9 8-11 8-13 9-14 17-18 18-19 19-20 20-21 21-22 22-26  
22-28 24-25 24-27 24-29 25-30

Match level :

1:CLASS2:CLASS3:CLASS4:CLASS5:CLASS6:CLASS7:CLASS8:CLASS9:CLASS10:CLASS11:CLASS  
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32:CLASS

fragments assigned product role:

containing 17

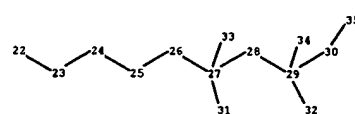
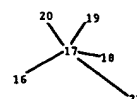
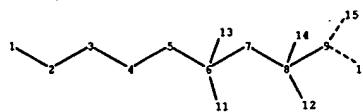
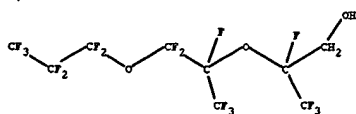
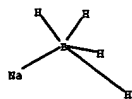
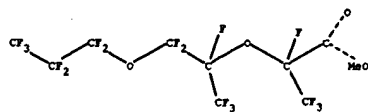
fragments assigned reactant/reagent role:

containing 1

containing 15

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chain nodes :

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28  
29 30 31 32 33 34 35

chain bonds :

1-2 2-3 3-4 4-5 5-6 6-7 6-11 6-13 7-8 8-9 8-12 8-14 9-10 9-15 16-17 17-18 17-19 17-20  
17-21 22-23 23-24 24-25 25-26 26-27 27-28 27-31 27-33 28-29 29-30 29-32 29-34 30-35

exact/norm bonds :

6-7 7-8 9-10 9-15 27-28 28-29

exact bonds :

1-2 2-3 3-4 4-5 5-6 6-11 6-13 8-9 8-12 8-14 16-17 17-18 17-19 17-20 17-21 22-23 23-24  
24-25 25-26 26-27 27-31 27-33 29-30 29-32 29-34 30-35

Match level :

1:CLASS2:CLASS3:CLASS4:CLASS5:CLASS6:CLASS7:CLASS8:CLASS9:CLASS10:CLASS11:CLASS  
12:CLASS13:CLASS14:CLASS15:CLASS16:CLASS17:CLASS18:CLASS19:CLASS20:CLASS21:CLASS  
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32:CLASS33:CLASS34:CLASS35:CLASS

fragments assigned product role:

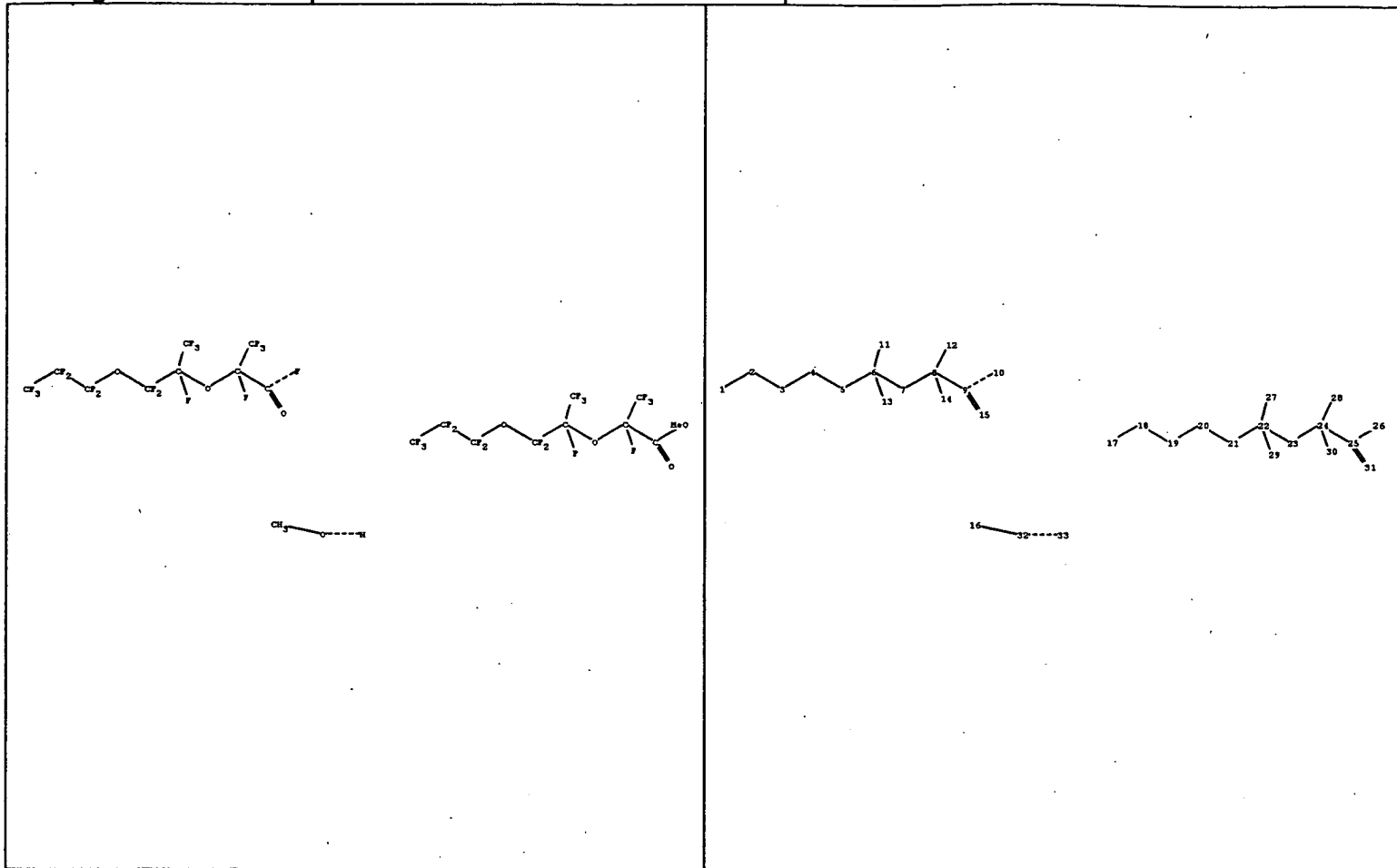
containing 22

fragments assigned reactant/reagent role:

containing 1

containing 16

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chain nodes :

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28  
29 30 31 32 33

chain bonds :

1-2 2-3 3-4 4-5 5-6 6-7 6-11 6-13 7-8 8-9 8-12 8-14 9-10 9-15 16-32 17-18 18-19 19-20  
20-21 21-22 22-23 22-27 22-29 23-24 24-25 24-28 24-30 25-26 25-31 32-33

exact/norm bonds :

6-7 7-8 9-10 9-15 22-23 23-24 25-31 32-33

exact bonds :

1-2 2-3 3-4 4-5 5-6 6-11 6-13 8-9 8-12 8-14 16-32 17-18 18-19 19-20 20-21 21-22 22-27  
22-29 24-25 24-28 24-30 25-26

Match level :

1:CLASS2:CLASS3:CLASS4:CLASS5:CLASS6:CLASS7:CLASS8:CLASS9:CLASS10:CLASS11:CLASS  
12:CLASS13:CLASS14:CLASS15:CLASS16:CLASS17:CLASS18:CLASS19:CLASS20:CLASS21:CLASS  
22:CLASS23:CLASS24:CLASS25:CLASS26:CLASS27:CLASS28:CLASS29:CLASS30:CLASS31:CLASS  
32:CLASS33:CLASS

fragments assigned product role:

containing 17

fragments assigned reactant/reagent role:

containing 1

containing 16

**THIS PAGE BLANK (USPTO)**

containing 1  
containing 20

**THIS PAGE BLANK (USPTO)**

10813525 PTFE 7 step reaction sequence

=> dis his

(FILE 'HOME' ENTERED AT 12:14:22 ON 23 JAN 2007)

FILE 'CASREACT' ENTERED AT 12:14:29 ON 23 JAN 2007

L1	STRUCTURE UPLOADED
L2	STRUCTURE UPLOADED
L3	STRUCTURE UPLOADED
L4	STRUCTURE UPLOADED
L5	STRUCTURE UPLOADED
L6	STRUCTURE UPLOADED
L7	STRUCTURE UPLOADED
L8	0 S L1 SSS SAM
L9	0 S L1 SSS FULL
L10	0 S L2 SSS SAM
L11	0 S L2 SSS FULL
L12	0 S L3 SSS SAM
L13	0 S L3 SSS FULL
L14	0 S L4 SSS SAM
L15	0 S L4 SSS FULL
L16	0 S L5 SSS SAM
L17	0 S L5 SSS FULL
L18	0 S L6 SSS SAM
L19	0 S L6 SSS FULL
L20	0 S L7 SSS SAM
L21	0 S L7 SSS FULL
L22	0 S L1 OR L2
L23	0 S L1 OR L2 OR L3 OR L4 OR L5 OR L6 OR L7
L24	0 S L1 OR L2 OR L3 OR L4 OR L5 OR L6 OR L7 FULL

FILE 'REGISTRY' ENTERED AT 12:24:22 ON 23 JAN 2007

FILE 'CAPLUS' ENTERED AT 12:24:47 ON 23 JAN 2007  
S L1

FILE 'REGISTRY' ENTERED AT 12:24:52 ON 23 JAN 2007

FILE 'CAPLUS' ENTERED AT 12:24:52 ON 23 JAN 2007

=> save l1-l24

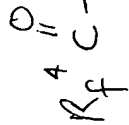
ENTER NAME OR (END):pfperxns/l

L# LIST L1-L24 HAS BEEN SAVED AS 'PFPERXNS/L'

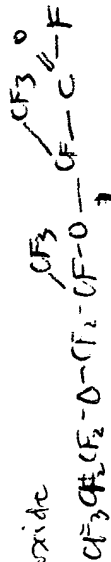
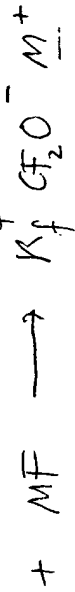
10/8/3525

C<sub>2</sub>F<sub>5</sub>

C<sub>5</sub>F



1)



alkoxide



alkoxide

2)

hexafluoropropylene oxide

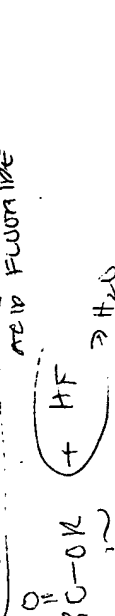
C<sub>3</sub>-C<sub>6</sub>

perfluoroalkyl

using O in rings

polymer repeat unit

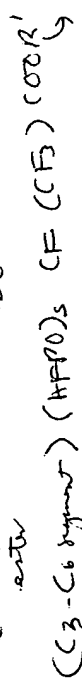
acid fluoride



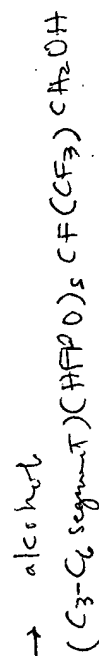
e.g. CH<sub>3</sub>OH

3)

acid fluoride + ROH



alcohol



4)

ester + NaOH

alcohol



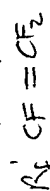
5)

alcohol + MeH

like KOH

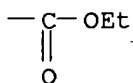
C<sub>3</sub>-C<sub>6</sub> segment fluoropolyether

hexafluoropropylene



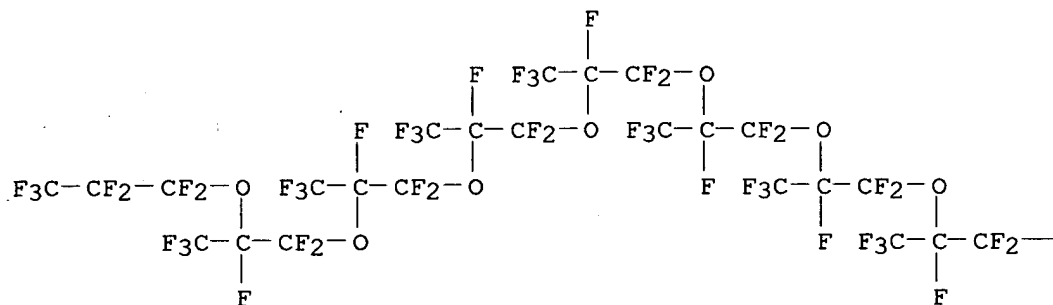
all H's converted to F



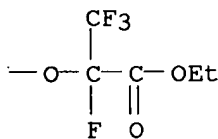


RN	121368-62-5	HCAPLUS
CN	3,6,9,12,15,18,21,24-Octaoxaheptacosanoic acid, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,26,27, 27,27-nonacosafuoro-2,5,8,11,14,17,20,23-octakis(trifluoromethyl)-, ethyl ester (9CI) (CA INDEX NAME)	

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PAGE 1-B



L4 ANSWER ~~22 OF 41~~ HCAPLUS COPYRIGHT 2007 ACS on STN

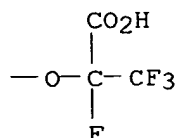
ACCESSION NUMBER: 1984:474770 HCAPLUS

DOCUMENT NUMBER: 101:74770

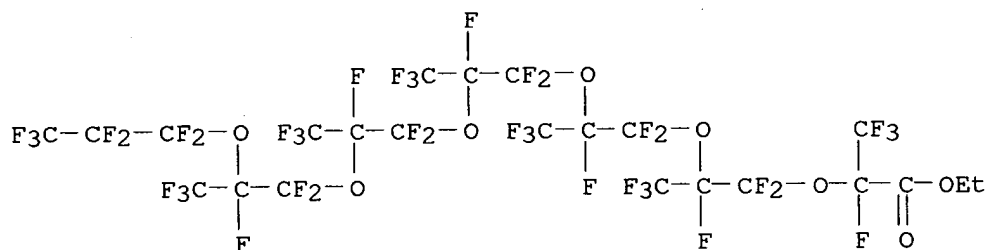
TITLE: Surface active substances containing an  
oligo(hexafluoropropene oxide) chain as a hydrophobic  
oleophobic moiety

AUTHOR(S) : Ishikawa, Nobuo; Sasabe, Mikio

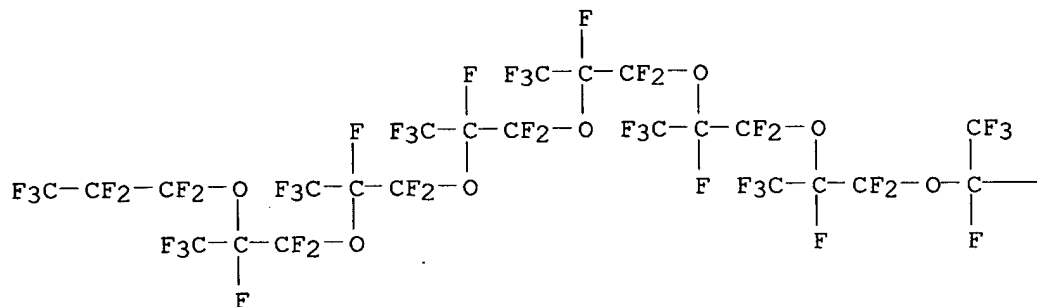
CORPORATE SOURCE: Dep. Chem. Technol., Tokyo Inst. Technol., Tokyo, 152,



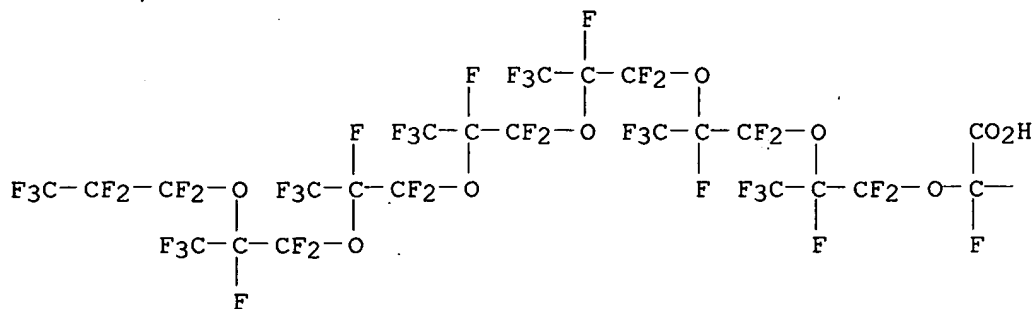
RN 121368-60-3 HCAPLUS  
 CN 3,6,9,12,15,18-Hexaoxaheneicosanoic acid, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,20,21,21,21-tricosafuoro-2,5,8,11,14,17-hexakis(trifluoromethyl)-, ethyl ester (9CI) (CA INDEX NAME)



RN 121368-61-4 HCAPLUS  
 CN 3,6,9,12,15,18,21-Heptaotetracosanoic acid, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,23,24,24,24-hexacosafuoro-2,5,8,11,14,17,20-heptakis(trifluoromethyl)-, ethyl ester (9CI) (CA INDEX NAME)



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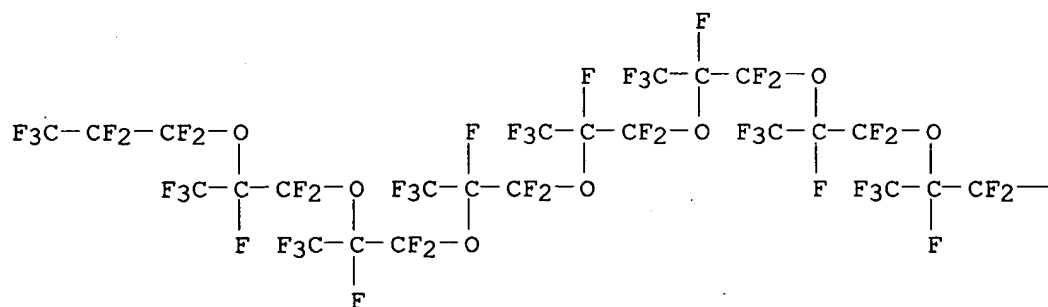


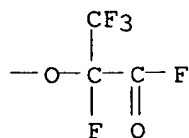
PAGE 1-B

—CF<sub>3</sub>

RN 65151-83-9 HCAPLUS  
 CN 3,6,9,12,15,18,21,24-Octaoxaheptacosanoic acid,  
 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,26,27,  
 27,27-nonacosafuoro-2,5,8,11,14,17,20,23-octakis(trifluoromethyl)- (9CI)  
 (CA INDEX NAME)

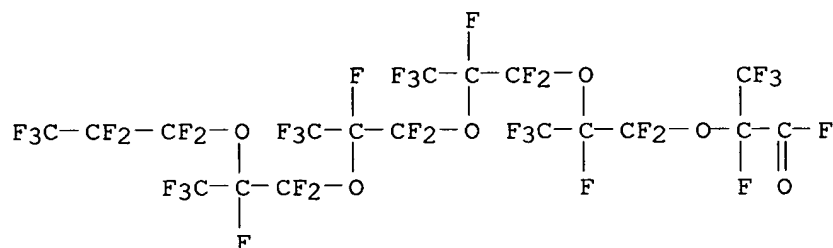
PAGE 1-A





RN 13252-15-8 HCAPLUS

CN 3,6,9,12,15-Pentaoxaoctadecanoyl fluoride, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,17,18,18,18-eicosafuoro-2,5,8,11,14-pentakis(trifluoromethyl)-(7CI, 8CI, 9CI) (CA INDEX NAME)



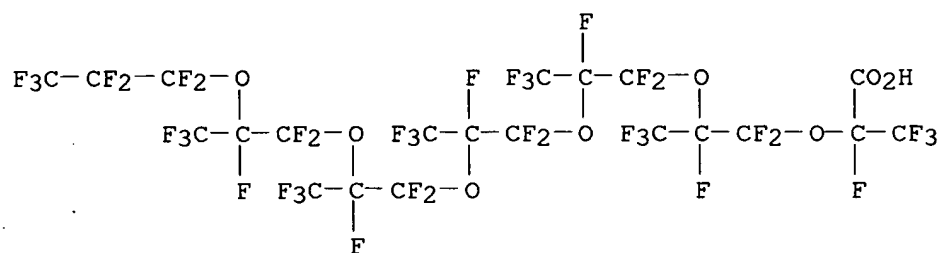
IT 65151-50-0P 65151-72-6P 65151-83-9P

121368-60-3P 121368-61-4P 121368-62-5P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of, and thermal decomposition of)

RN 65151-50-0 HCAPLUS

CN 3,6,9,12,15,18-Hexaoxaheneicosanoic acid, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,20,21,21,21-tricosafuoro-2,5,8,11,14,17-hexakis(trifluoromethyl)-(9CI) (CA INDEX NAME)

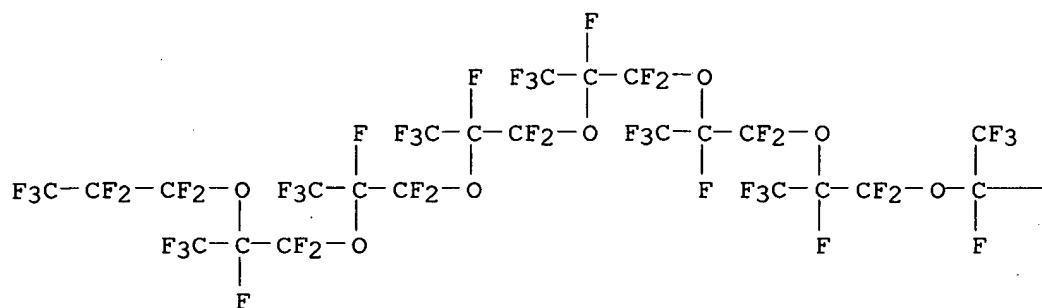


RN 65151-72-6 HCAPLUS

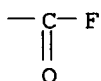
CN 3,6,9,12,15,18,21-Heptaoxatetracosanoic acid, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,23,24,24,24-hexacosafuoro-2,5,8,11,14,17,20-heptakis(trifluoromethyl)-(9CI) (CA INDEX NAME)

RN 13140-25-5 HCAPLUS  
 CN 3,6,9,12,15,18,21-Heptaoxatetracosanoyl fluoride,  
 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,23,24,24,24-  
 hexacosafuoro-2,5,8,11,14,17,20-heptakis(trifluoromethyl)- (7CI, 8CI,  
 9CI) (CA INDEX NAME)

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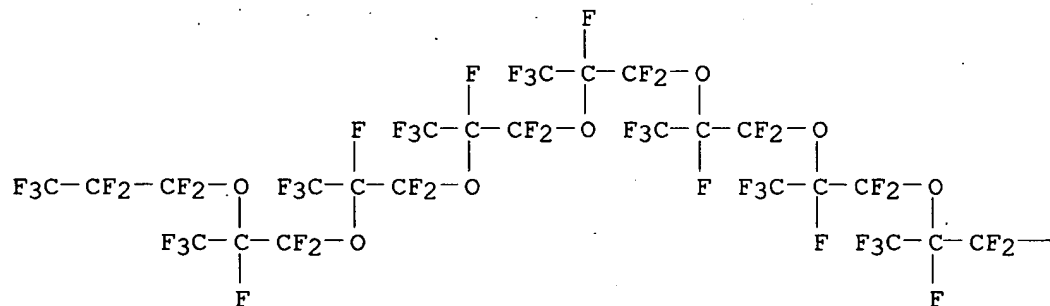


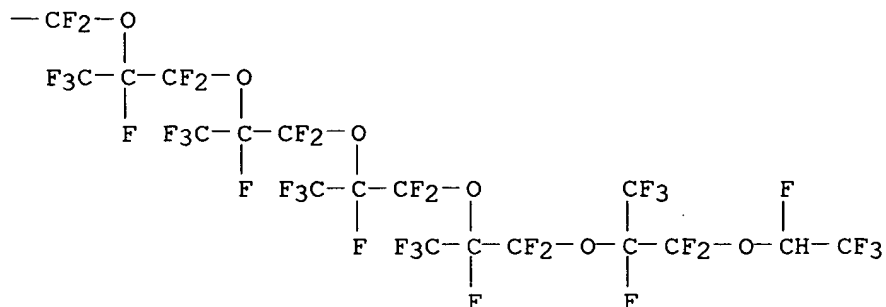
PAGE 1-B



RN 13140-26-6 HCAPLUS  
 CN 3,6,9,12,15,18,21,24-Octaoxaheptacosanoyl fluoride,  
 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,26,27,  
 27,27-nonacosafuoro-2,5,8,11,14,17,20,23-octakis(trifluoromethyl)- (7CI,  
 8CI, 9CI) (CA INDEX NAME)

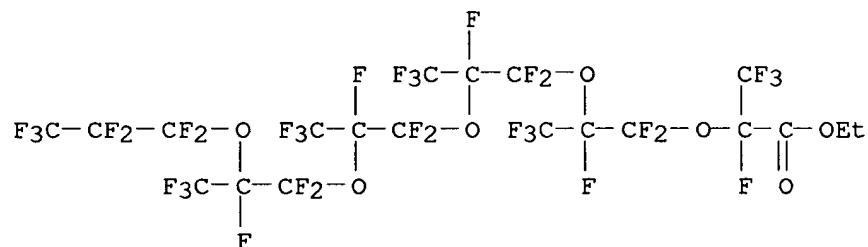
PAGE 1-A





RN 121368-59-0 HCAPLUS

CN 3,6,9,12,15-Pentaoxaoctadecanoic acid, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,  
16,17,17,18,18,18-eicosafluoro-2,5,8,11,14-pentakis(trifluoromethyl)-,  
ethyl ester (9CI) (CA INDEX NAME)



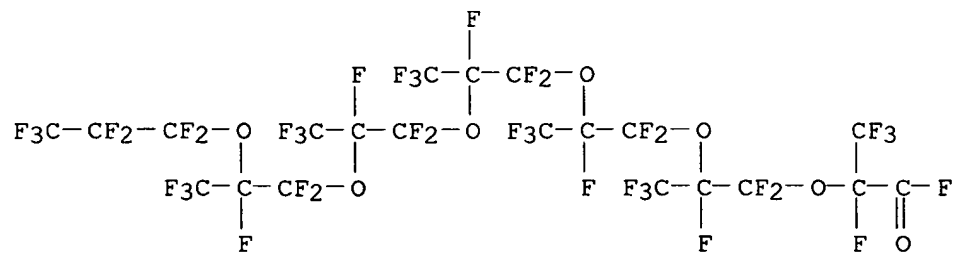
IT 13140-24-4P 13140-25-5P 13140-26-6P

13252-15-8P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP  
(Preparation); RACT (Reactant or reagent)  
(preparation and reactions of)

RN 13140-24-4 HCAPLUS

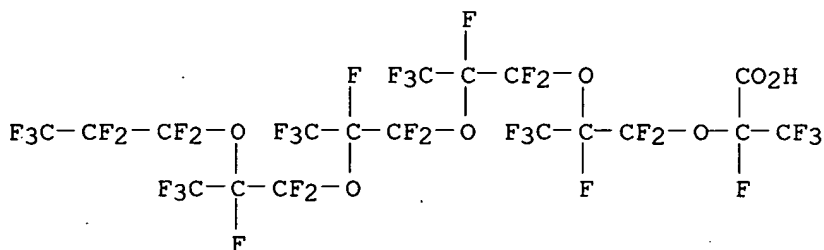
CN 3,6,9,12,15,18-Hexaoxaheneicosanoyl fluoride,  
2,4,4,5,7,7,8,10,11,13,13,14,16,16,17,19,19,20,20,21,21,21-  
tricosafuoro-2,5,8,11,14,17-hexakis(trifluoromethyl)- (7CI, 8CI, 9CI)  
(CA INDEX NAME)



10813525 PTFE

RN 52481-85-3 HCAPLUS

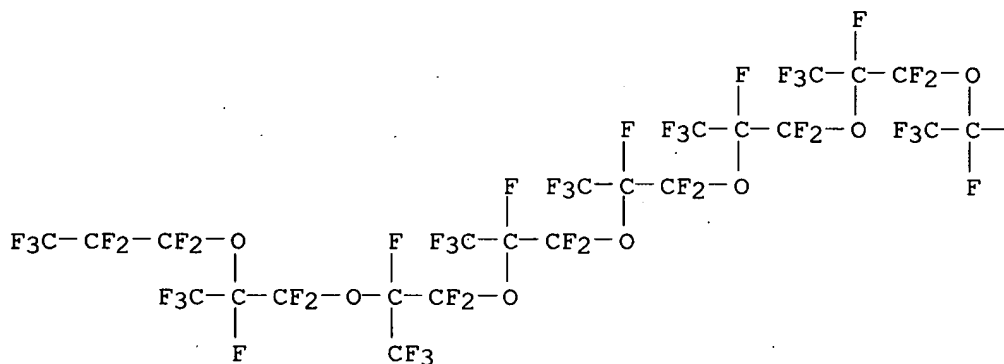
CN 3,6,9,12,15-Pentaoxaoctadecanoic acid, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,17,18,18,18-eicosafuoro-2,5,8,11,14-pentakis(trifluoromethyl)-(9CI) (CA INDEX NAME)



RN 119214-95-8 HCAPLUS

CN 3,6,9,12,15,18,21,24,27,30,33,36,39-Tridecaoxadotetracontane,  
1,1,1,2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,  
28,28,29,31,31,32,34,34,35,37,37,38,40,40,41,41,42,42,42-  
heptatetracontafluoro-5,8,11,14,17,20,23,26,29,32,35,38-  
dodecakis(trifluoromethyl)- (9CI) (CA INDEX NAME)

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13140-28-8P 52481-85-3P 119214-95-8P

121368-59-0P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP

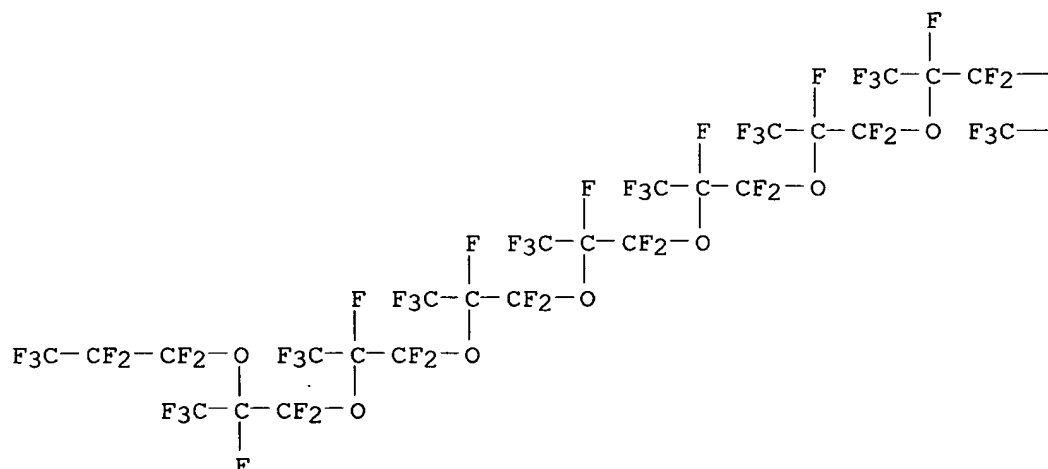
(Preparation); RACT (Reactant or reagent)

(preparation and reaction of, in synthesis of carbonyl fluorides)

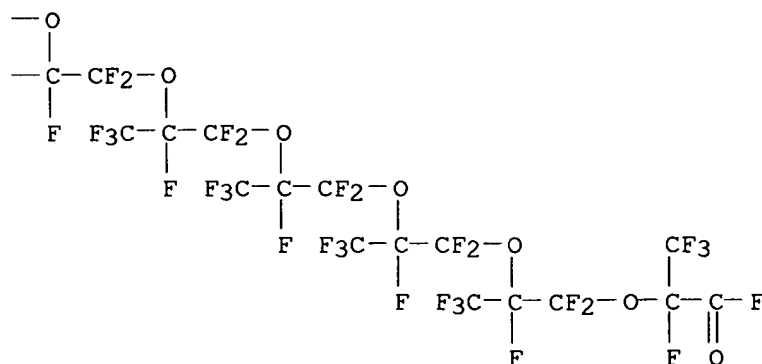
RN 13140-28-8 HCAPLUS

CN 3,6,9,12,15,18,21,24,27,30,33,36,39-Tridecaoxadotetracontanoyl fluoride,  
2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,28,28,  
29,31,31,32,34,34,35,37,37,38,40,40,41,41,42,42,42-tetratetracontafluoro-  
2,5,8,11,14,17,20,23,26,29,32,35,38-tridecakis(trifluoromethyl)- (7CI,  
8CI, 9CI) (CA INDEX NAME)

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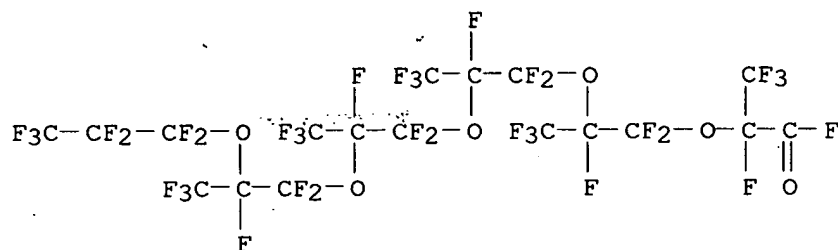




IT 13252-15-8P

(manufacture of, by oligomerization of hexafluoropropylene oxide, catalysts for)

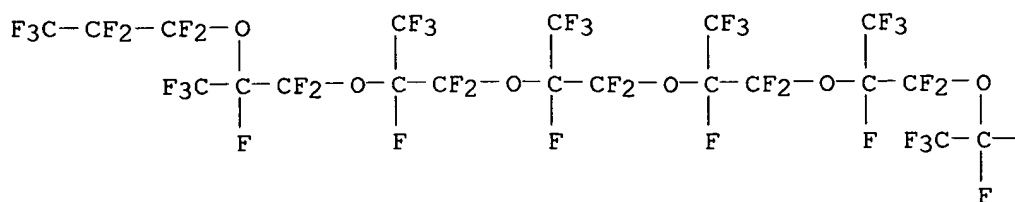
CN 3,6,9,12,15-Pentaoxaoctadecanoyl fluoride, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,17,18,18,18-eicosafluoro-2,5,8,11,14-pentakis(trifluoromethyl)-(7CI, 8CI, 9CI) (CA INDEX NAME)



PATENT INFORMATION:

thermally decomposing  $\text{RfO}(\text{CF}_2\text{CF}_2\text{O})_a(\text{CF}_2\text{O})_b(\text{O})_c\text{Rf}'$  (Rf = perfluoroalkyl; Rf' = COF, CF<sub>3</sub>; the CF<sub>2</sub>O and O groups are distributed at random; a, b ≠ 0; c can be 0; a + b + c ≤ .apprx.200) or  $\text{RfO}(\text{CF}_x\text{CF}_2\text{O})_n\text{CF}_x'\text{Y}$  (X' =

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—CF<sub>2</sub>—CF<sub>3</sub>

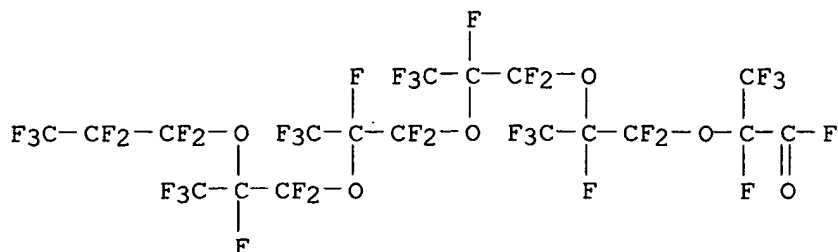
L4 ANSWER 20 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1989:614127 HCAPLUS  
 DOCUMENT NUMBER: 111:214127  
 TITLE: Process for preparation of perfluorinated carboxylic acid fluorides  
 INVENTOR(S): Kruse, Alfred; Siegemund, Guenter; Schwertfeger, Werner  
 PATENT ASSIGNEE(S): Hoechst A.-G., Fed. Rep. Ger.  
 SOURCE: Ger. Offen., 5 pp.  
 CODEN: GWXXBX  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 3737920	A1	19890518	DE 1987-3737920	19871107
US 4874557	A	19891017	US 1988-266919	19881103
EP 315908	A1	19890517	EP 1988-118391	19881104
EP 315908	B1	19920826		
R: BE, CH, DE, FR, GB, IT, LI, NL				
JP 01157933	A	19890621	JP 1988-277536	19881104
CN 1034199	A	19890726	CN 1988-107738	19881107
CN 1022240	B	19930929		

PRIORITY APPLN. INFO.: DE 1987-3737920 A 19871107

OTHER SOURCE(S): MARPAT 111:214127

AB F3CCF2[CF2OCF(CF3)]<sub>n</sub>COF (I; n = 2, 3), useful intermediates and monomers, are prepared by oligomerization of hexafluoropropylene oxide (II) at -20 to +100° in the presence of a catalyst system comprising: 1) alkali fluoride, preferably KF, 2-30%; 2) C5-8 alkanedinitrile, preferably adiponitrile, 50-95%; 3) MeO(CH<sub>2</sub>CH<sub>2</sub>O)<sub>m</sub>Me (III; m = 2-6, preferably 3) 2-50%. The process is advantageous in that higher temps. are used, product composition can be controlled by manipulation of the catalyst system composition, the product is readily separated, and the catalyst system can be reused. Thus, in a stainless steel autoclave a mixture of 30 g KF, 500 mL



L4 ANSWER 19 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1990:467438 HCAPLUS

DOCUMENT NUMBER: 113:67438

TITLE: Electrolytic decarboxylation of perfluorocarboxylic acids or their soluble salts and subsequent dimerization of the radicals produced

INVENTOR(S): Blickle, Peter; Schwertfeger, Werner

PATENT ASSIGNEE(S): Hoechst A.-G., Germany

SOURCE: Ger. Offen., 6 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 3828848	A1	19900301	DE 1988-3828848	19880825
JP 02061081	A	19900301	JP 1988-269622	19881027
EP 355726	A1	19900228	EP 1989-115237	19890818
EP 355726	B1	19930107		
R: AT, BE, CH, DE, ES, FR, GB, IT, LI, NL, SE				
AT 84323	T	19930115	AT 1989-115237	19890818
PRIORITY APPLN. INFO.:			DE 1988-3828848	A 19880825
			EP 1989-115237	A 19890818

OTHER SOURCE(S): CASREACT 113:67438

AB The electrolysis is carried out in MeOH or MeOH/H<sub>2</sub>O mixts. Perfluoropolyethers are obtained. When >1 perfluorocarboxylic acids are used, a mixture of sym. and unsym. perfluoropolyethers are obtained.

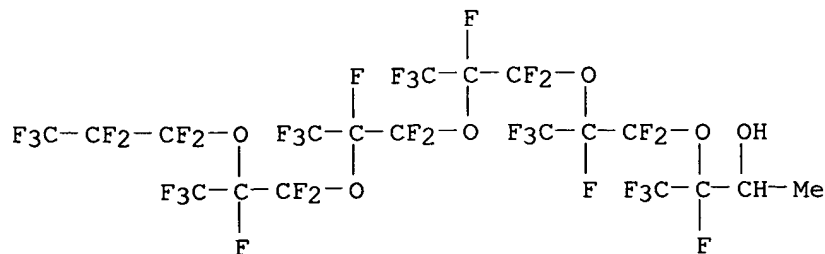
IT 128401-81-0P

RL: PREP. (Preparation)

(production of, by electrolytic decarboxylation)

RN 128401-81-0 HCAPLUS

CN 4,7,10,13,16,19-Hexaoxadocosane, 1,1,1,2,2,3,3,5,6,6,8,9,9,11,12,12,14,15,15,17,18,18,20,21,21,22,22,22-octacosafuoro-5,8,11,14,17,20-hexakis(trifluoromethyl)- (9CI) (CA INDEX NAME)



L4 ANSWER 18 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1990:592144 HCAPLUS

DOCUMENT NUMBER: 113:192144

TITLE: Process and catalysts for the manufacture of hexafluoropropylene oxide oligomers

INVENTOR(S): Von Werner, Konrad

PATENT ASSIGNEE(S): Hoechst A.-G., Germany

SOURCE: Ger. Offen., 7 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 3837506	A1	19900510	DE 1988-3837506	19881104
JP 02172944	A	19900704	JP 1989-283150	19891101
EP 367256	A2	19900509	EP 1989-120268	19891102
EP 367256	A3	19911030		

R: DE, FR, GB, IT, NL

PRIORITY APPLN. INFO.: DE 1988-3837506 A 19881104

AB The title oligomers  $\text{F}_3\text{CCF}_2[\text{CF}_2\text{OCF}(\text{CF}_3)]_n\text{-1COF}$  (I;  $n = 2-6$ ), are produced in high yield by the reaction of hexafluoropropylene oxide at  $-60^\circ$  to  $+60^\circ$  in the presence of a catalyst system comprising an aprotic C2-25 tertiary amine and a mono- to trivalent metal fluoride salt in a polar aprotic solvent (attention! the acid fluorides are toxic and should be handled accordingly). Thus, under Ar, 1.16 g dry KF was added to 100 cm<sup>3</sup> anhydrous acetonitrile containing 3.20 g

1,5-bis(dimethylamino)-3-oxapentane, the mixture stirred, during the first 15 min hexafluoropropylene oxide was added at a rate of 10 dm<sup>3</sup>/h, during the following 3 h at a rate of 17.5 dm<sup>3</sup>/h at  $20 \pm 2^\circ$ , producing a total acid fluoride yield of 97.5%, with the preparation of I ( $n = 2$ ) 1.4, I ( $n = 3$ ) 16.9, I ( $n = 4$ ) 45.8, I ( $n = 5$ ) 30.8, I ( $n = 6$ ) 3.8, and residue 1.3%.

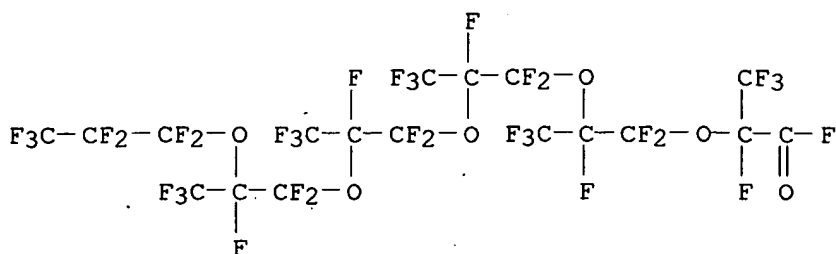
IT 13252-15-8P

RL: IMF (Industrial manufacture); PREP (Preparation)

(manufacture of, in high yield from hexafluoropropylene oxide, catalysts for)

RN 13252-15-8 HCAPLUS

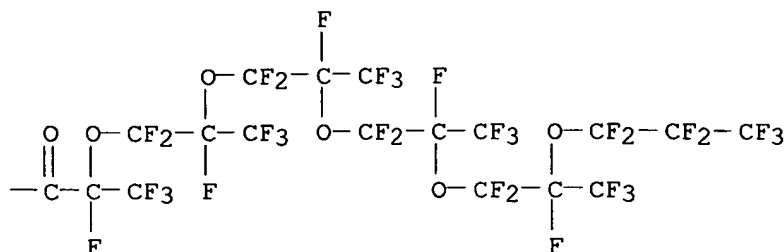
CN 3,6,9,12,15-Pentaoxaoctadecanoyl fluoride, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,17,18,18,18-eicosafluoro-2,5,8,11,14-pentakis(trifluoromethyl)-(7CI, 8CI, 9CI) (CA INDEX NAME)



L4 ANSWER 17 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1990:611371 HCAPLUS  
 DOCUMENT NUMBER: 113:211371  
 TITLE: Methylcarbinol-terminated hexafluoropropylene oxide  
 oligoether derivatives  
 INVENTOR(S): Takaoka, Akio; Koike, Noriyuki; Fujii, Hidenori  
 PATENT ASSIGNEE(S): Shin-Etsu Chemical Industry Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 02188543	A	19900724	JP 1989-5593	19890112
JP 06088925	B	19941109		

PRIORITY APPLN. INFO.: JP 1989-5593 19890112  
 AB F[CF(CF<sub>3</sub>)CF<sub>2</sub>O]<sub>n</sub>-1CF(CF<sub>3</sub>)CHMeOH (I; n = 2-5) are prepared An Et<sub>2</sub>O solution containing MeI and Me<sub>2</sub>CHBr was added dropwise to a mixture of Mg and Et<sub>2</sub>O under reflux and the reaction mixture was further refluxed for 1 h. Subsequently an Et<sub>2</sub>O solution of CF<sub>3</sub>CF<sub>2</sub>[CF<sub>2</sub>OCF(CF<sub>3</sub>)]<sub>2</sub>CO<sub>2</sub>Me (prepared from hexafluoropropylene oxide trimer) was added dropwise at 0-3° over 1.5 h and the reaction mixture was further stirred at room temperature for a day to give 83% I (n = 3).  
 IT 130290-26-5P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)  
 RN 130290-26-5 HCAPLUS  
 CN 4,7,10,13,16-Pentaoxanonadecan-2-ol, 3,5,5,6,8,8,9,11,11,12,14,14,15,17,17,18,18,19,19,19-eicosafluoro-3,6,9,12,15-pentakis(trifluoromethyl)- (9CI)  
 (CA INDEX NAME)



L4 ANSWER 16 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1991:163543 HCAPLUS

DOCUMENT NUMBER: 114:163543

TITLE: Preparation of carbonyl fluorides by oligomerization of hexafluoropropene oxides

INVENTOR(S): Strutz, Heinz

PATENT ASSIGNEE(S): Hoechst A.-G., Germany

SOURCE: Ger. Offen., 9 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 3901000	A1	19900719	DE 1989-3901000	19890114
EP 378767	A1	19900725	EP 1989-120269	19891102
EP 378767	B1	19940831		
R: BE, CH, DE, ES, FR, GB, IT, LI, NL				
ES 2063099	T3	19950101	ES 1989-120269	19891102
US 4973748	A	19901127	US 1990-463422	19900111
CA 2007685	A1	19900714	CA 1990-2007685	19900112
KR 170384	B1	19990330	KR 1990-321	19900112
CN 1044090	A	19900725	CN 1990-100154	19900113
CN 1026581	B	19941116		
JP 02237955	A	19900920	JP 1990-6997	19900116
			DE 1989-3901000	A 19890114

PRIORITY APPLN. INFO.:

OTHER SOURCE(S): MARPAT 114:163543

AB C2F5[CF2OCF(CF3)]<sub>n</sub>COF (I; n = 0-8) were prepared by oligomerization of hexafluoropropene oxide (II) in an aprotic solvent containing a tertiary diamine and, optionally, an active-proton containing compound. Thus, II was supplied to a vessel containing vigorously stirred MeCN containing (Me<sub>2</sub>NCH<sub>2</sub>)<sub>2</sub> to

give I having n = 1-5 in the following proportions: (n = 1) 3.7, (n = 2) 15.3, (n = 3) 37.4, (n = 4) 37.0, and (n = 5) 6.6 weight%.

IT 13252-15-8P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of, by oligomerization of hexafluoropropene oxide)

RN 13252-15-8 HCAPLUS

CN 3,6,9,12,15-Pentaoxaoctadecanoyl fluoride, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,17,18,18,18-eicosafluoro-2,5,8,11,14-pentakis(trifluoromethyl)-(7CI, 8CI, 9CI) (CA INDEX NAME)

DOCUMENT TYPE: CODEN: EPXXDW  
 LANGUAGE: Patent  
 FAMILY ACC. NUM. COUNT: 1 English  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 405396	A1	19910102	EP 1990-112033	19900625
EP 405396	B1	19940907		
R: CH, DE, FR, GB, IT, LI, NL				
JP 03031253	A	19910212	JP 1989-162609	19890627
JP 07068210	B	19950726		
US 5068454	A	19911126	US 1990-538996	19900615
PRIORITY APPLN. INFO.:			JP 1989-162609	A 19890627

OTHER SOURCE(S): MARPAT 114:246820

AB CF<sub>3</sub>CF<sub>2</sub>CF<sub>2</sub>O[CF(CF<sub>3</sub>)CF<sub>2</sub>O]LCF(CF<sub>3</sub>)C(O)OOC(O)CF(CF<sub>3</sub>)[OCF<sub>2</sub>CF(CF<sub>3</sub>)]<sub>m</sub>OCF<sub>2</sub>CF<sub>2</sub>CF<sub>3</sub> (1, m = 0-8 and 1 + m ≥ 1) which exhibit water and oil repellency and useful as polymerization catalysts for electron-withdrawing monomers, e.g. CF<sub>2</sub>:CF<sub>2</sub>, CH<sub>2</sub>:CHCl, CH<sub>2</sub>:CHCN, or hexafluoropropene and also useful as fluoroalkylating reagents for directly introducing perfluoroalkyl groups CF<sub>3</sub>CF<sub>2</sub>CH<sub>2</sub>O[CF(CF<sub>3</sub>)CF<sub>2</sub>]<sub>n</sub>CF<sub>3</sub>, are prepared Thus, 120 g CCl<sub>2</sub>FCClF<sub>2</sub> (I) was added to a stirred solution of 3.37 g KOH in 28 g H<sub>2</sub>O and the resulting mixture was cooled to approx. -5° and thereto was added 6.9 g 30% aqueous H<sub>2</sub>O<sub>2</sub> followed dropwise by a solution of perfluoro-2,5-dimethyl-3,6-dioxanonanoyl fluoride in I over 20 min at -5 to 5°. The mixture was allowed to react 60 min to give 93% bis(perfluoro-2,5-dimethyl-3,6-dioxanonanoyl)peroxide.

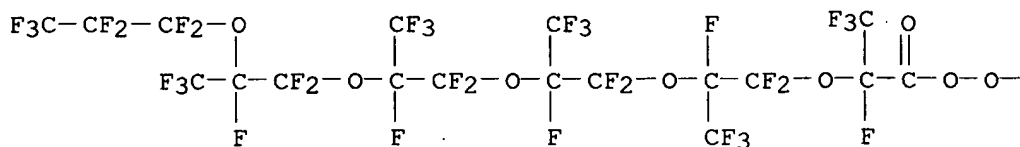
IT 134121-83-8P

RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of, as polymerization initiator)

RN 134121-83-8 HCAPLUS

CN 4,7,10,13,16,19,20,23,26,29,32,35-Dodecaoxaoctatriacontane,  
 1,1,1,2,2,3,3,5,6,6,8,9,9,11,12,12,14,15,15,17,22,24,24,25,27,27,28,30,30,  
 31,33,33,34,36,36,37,37,38,38,38-tetracontafluoro-18,21-dioxo-  
 5,8,11,14,17,22,25,28,31,34-decakis(trifluoromethyl)- (9CI) (CA INDEX  
 NAME)

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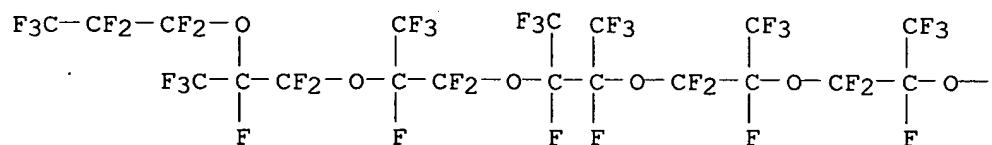
RL: PREP (Preparation)

(production of, by Kolbe electrolysis of perfluoroether carboxylic acids)

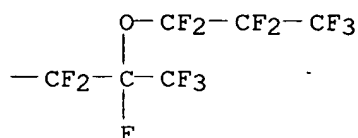
RN 143541-63-3 HCAPLUS

CN 4,7,10,13,16,19,22-Heptaioxapentacosane, 1,1,1,2,2,3,3,5,6,6,8,9,9,11,12,12,14,15,17,17,18,20,20,21,23,23,24,24,25,25,25-hentriacontafuoro-5,8,11,14,15,18,21-heptakis(trifluoromethyl)- (9CI) (CA INDEX NAME)

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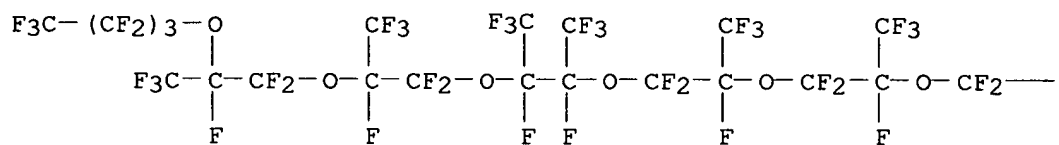
PAGE 1-B



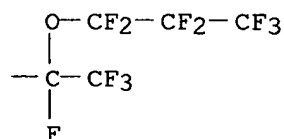
RN 143541-64-4 HCAPLUS

CN 4,7,10,13,16,19,22-Heptaioxahexacosane, 1,1,1,2,2,3,3,5,6,6,8,9,9,11,12,12,14,15,17,17,18,20,20,21,23,23,24,24,25,25,26,26,26-tritriacontafuoro-5,8,11,14,15,18,21-heptakis(trifluoromethyl)- (9CI) (CA INDEX NAME)

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L4 ANSWER 15 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1991:246820 HCAPLUS

DOCUMENT NUMBER: 114:246820

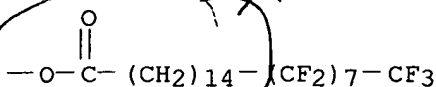
TITLE: Preparation of polyfluoroalkanoyl peroxides as polymerization initiators

INVENTOR(S): Sawada, Hideo; Nakayama, Masaharu

PATENT ASSIGNEE(S): Nippon Oil and Fats Co., Ltd., Japan

SOURCE: Eur. Pat. Appl., 6 pp.

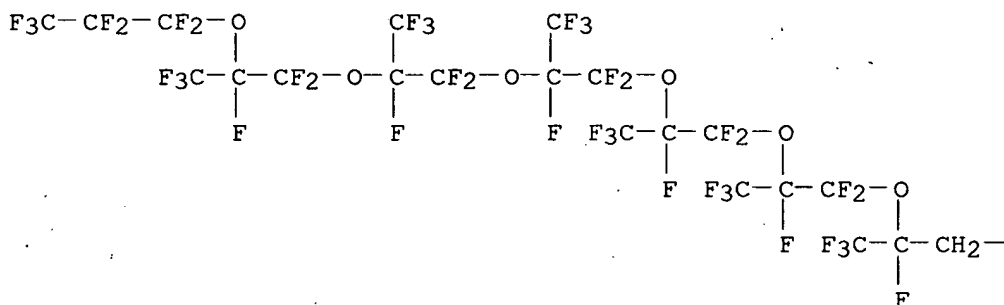




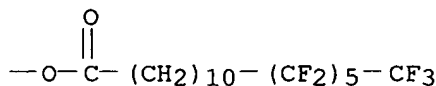
RN 153655-15-3 HCAPLUS

CN Heptadecanoic acid, 12,12,13,13,14,14,15,15,16,16,17,17,17-tridecafluoro-,  
2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,20,21,21,21-  
tricosafuoro-2,5,8,11,14,17-hexakis(trifluoromethyl)-3,6,9,12,15,18-  
hexaoxaheneicos-1-yl ester (9CI) (CA INDEX NAME)

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L4 ANSWER 13 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1993:233479 HCAPLUS

DOCUMENT NUMBER: 118:233479

TITLE: Preparation of perfluoropolyethers

INVENTOR(S): Sawada, Hideo; Matsumoto, Takeo; Nakayama, Masaharu

PATENT ASSIGNEE(S): Nippon Oil and Fats Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

*closest*  
*PFPE*  
*radical not*  
*same*  
*pp. 8p.*

10813525 PTFE

FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 05000982	A	19930108	JP 1991-156813	19910627
PRIORITY APPLN. INFO.:			JP 1991-156813	19910627

OTHER SOURCE(S): MARPAT 118:233479

AB C3F7O(CFCF3CF2O)mCFCF3CFCF3(OCF2CFCF3)nOC3F7 (m, n = 0-8; m + n ≥ 1), useful as chemical and heat-resistant materials, lubricants, elec. insulators, etc. (no data), are prepared (C3F7OCFCF3CF2OCFCF3CO)2O2 was heated in 1,1,2-trichlorotrifluoroethane at 40° for 25 h to give 90% C3F7OCFCF3CF2OCFCF3CFCF3OCF2CFCF3OC3F7. X

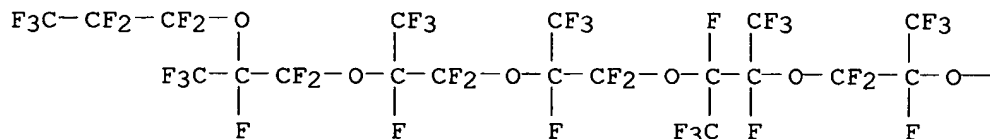
IT 147544-61-4P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

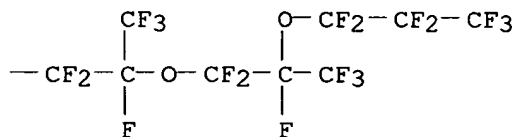
RN 147544-61-4 HCAPLUS

CN 4,7,10,13,16,19,22,25-Octaoxaoctacosane, 1,1,1,2,2,3,3,4,6,6,8,9,9,11,12,12,14,15,17,17,18,20,20,21,23,23,24,26,26,27,27,28,28,28-tetratriacontafluoro-5,8,11,14,15,18,21,24-octakis(trifluoromethyl)- (9CI)  
(CA INDEX NAME)

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L4 ANSWER 14 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1992:539677 HCAPLUS

DOCUMENT NUMBER: 117:139677

TITLE: Kolbe electrolysis of perfluoroether carboxylic acids

AUTHOR(S): Ginzl, K. D.

CORPORATE SOURCE: Hoechst AG, Frankfurt/Main, Germany

SOURCE: DECHEMA Monographien (1992), 125(Elektrochem. Stoffgewinnung: Grundlagen Verfahrenstech.), 631-7  
CODEN: DMDGAG; ISSN: 0070-315X

DOCUMENT TYPE: Journal

LANGUAGE: German

AB Perfluorinated O-containing carboxylic acids, which are easily available from oligomeric hexafluoropropenoxide, are used as starting materials for Kolbe electrolysis. The obtained products show high chemical and thermal stability and exhibit a wide range of tech. applications, e.g. as coolants.

IT 143541-63-3P 143541-64-4P

FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 05339205	A	19931221	JP 1992-144631	19920604
PRIORITY APPLN. INFO.:			JP 1992-144631	19920604

OTHER SOURCE(S): MARPAT 120:191138

AB R1(CH<sub>2</sub>)<sub>n</sub>CO<sub>2</sub>R<sub>2</sub> (I; R<sub>1</sub> = fluoroalkyl; R<sub>2</sub> = fluoroalkyl ether, fluoroalkyl, fluoroalkenyl, fluorophenyl; n ≥ 2) are prepared. A magnetic recording medium comprises a ferromagnetic film fabricated on a nonmagnetic support and a lubricant layer containing 1 ≥ fluoroalkanoic acid esters I coated on the ferromagnetic film directly or via a protecting film. I are not easily hydrolyzed and thereby their lubricating property is not decreased during storage under high humidity. They are useful as lubricants, surfactants, mold-releasing agents, or anticorrosive agents for precision machines and parts. Thus, C<sub>8</sub>F<sub>17</sub>CH<sub>2</sub>CH<sub>2</sub>CO<sub>2</sub>H 49.2, C<sub>8</sub>F<sub>17</sub>CH<sub>2</sub>CH<sub>2</sub>OH 46.4, p-MeC<sub>6</sub>H<sub>4</sub>SO<sub>3</sub>H 2.9 g, and 300 mL benzene were refluxed for 6 h with removal of H<sub>2</sub>O to give 94g C<sub>8</sub>F<sub>17</sub>CH<sub>2</sub>CH<sub>2</sub>CO<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>C<sub>8</sub>F<sub>17</sub> (II) as a white solid (m.p. 70°). A magnetic recording medium, comprising an Al alloy support plated with nonmagnetic Ni-P alloy and successively coated with a Cr undercoat, a nonmagnetic Ni-P, a magnetic Co-Ni, a diamond protecting film, a lubricant film of II (10 mg/m<sup>2</sup>), was stored at 40° and 80% relative humidity for 1 wk and subjected to contact-start-stop (CSS) test. It showed the CSS number of ≥ 50,000 when the coefficient of friction exceeded 1.0 or the head crush occurred, as compared to the CSS number of 18,000 for the existing lubricants octyl pentafluorobenzoate or octyl perfluorononanoate.

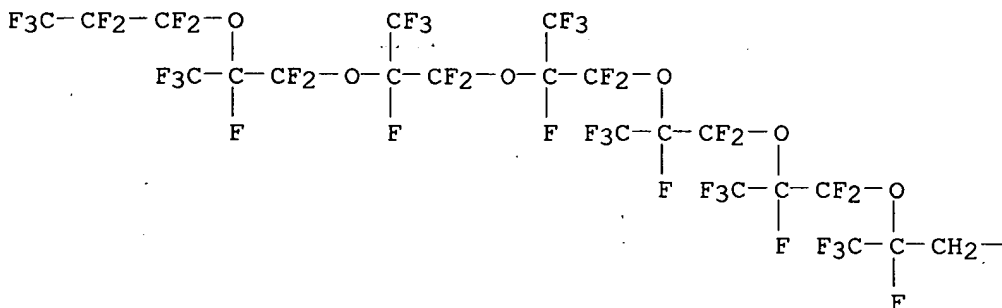
IT 153655-14-2P 153655-15-3P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of, as lubricant for magnetic recording media)

RN 153655-14-2 HCAPLUS

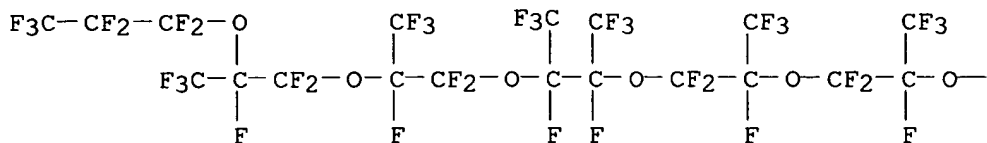
CN Tricosanoic acid, 16,16,17,17,18,18,19,19,20,20,21,21,22,22,23,23,23-heptafluoro-, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,20,21,21,21-tricosafuoro-2,5,8,11,14,17-hexakis(trifluoromethyl)-3,6,9,12,15,18-hexaoxaheneicos-1-yl ester (9CI) (CA INDEX NAME)

PAGE 1-A

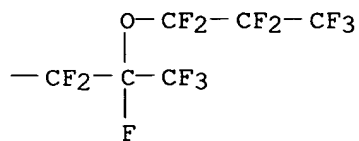


,14,15,17,17,18,20,20,21,23,23,24,24,25,25,25-hentriacontafluoro-  
5,8,11,14,15,18,21-heptakis(trifluoromethyl)- (9CI) (CA INDEX NAME)

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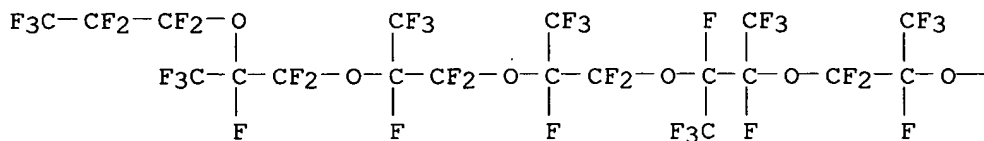
PAGE 1-B



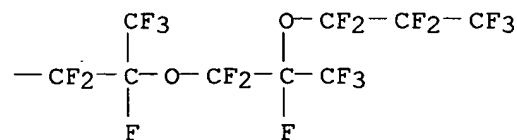
RN 147544-61-4 HCAPLUS

CN 4,7,10,13,16,19,22,25-Octaoxaoctacosane, 1,1,1,2,2,3,3,4,6,6,8,9,9,11,12,1  
2,14,15,17,17,18,20,20,21,23,23,24,26,26,27,27,28,28,28-  
tetratriacontafluoro-5,8,11,14,15,18,21,24-octakis(trifluoromethyl)- (9CI)  
(CA INDEX NAME)

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L4 ANSWER 12 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1994:191138 HCAPLUS

DOCUMENT NUMBER: 120:191138

TITLE: Preparation of fluoroalkanoic acid esters and magnetic  
recording medium with lubricant layer containing them

INVENTOR(S): Oochi, Yukikazu; Kai, Yoshiaki; Pponda, Kimiko

PATENT ASSIGNEE(S): Matsushita Electric Ind Co Ltd, Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.

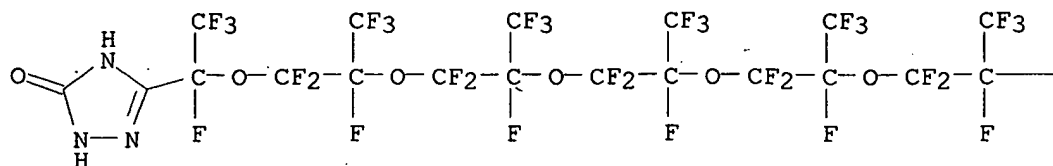
CODEN: JKXXAF

DOCUMENT TYPE: Patent

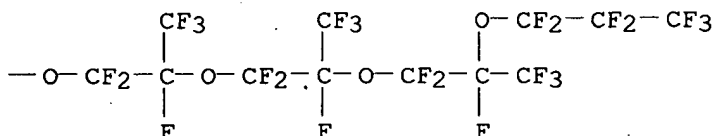
LANGUAGE: Japanese

1,4,7,10,13,16,19,22,25-nonakis(trifluoromethyl)-2,5,8,11,14,17,20,23,26-nonaoxanonacos-1-yl]-1,2-dihydro- (9CI) (CA INDEX NAME)

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L4 ANSWER 11 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1994:445165 HCAPLUS

DOCUMENT NUMBER: 121:45165

TITLE: Process for the preparation of perfluoropolyethers

INVENTOR(S): Jaeger, Gerhard; Millauer, Hans

PATENT ASSIGNEE(S): Hoechst A.-G., Germany

SOURCE: Eur. Pat. Appl., 9 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 576853	A1	19940105	EP 1993-108909	19930603
EP 576853	B1	19951018		
R: DE, FR, GB, IT, NL				
DE 4221555	A1	19940105	DE 1992-4221555	19920701
CA 2098477	A1	19940102	CA 1993-2098477	19930615
JP 07011471	A	19950113	JP 1993-163041	19930701
US 5468352	A	19951121	US 1995-389062	19950214
PRIORITY APPLN. INFO.:			DE 1992-4221555	A 19920701
			US 1993-78564	B1 19930617

AB Perfluoropolyethers of the formula  $\text{CF}_3\text{CF}_2[\text{CF}_2\text{OCF}(\text{CF}_3)]_x[\text{CF}(\text{CF}_3)\text{OCF}_2]_y\text{CF}_2\text{CF}_3$ , in which x and y = 1-4, are prepared by electrochem. decarboxylation of perfluorocarboxylic acids of the formula  $\text{CF}_3\text{CF}_2[\text{CF}_2\text{OCF}(\text{CF}_3)]_x\text{COOH}$ , in which x = 1-4. The decarboxylation is carried out in an aqueous electrolyte in the presence of aliphatic C1-6 nitriles.

IT 143541-63-3P 147544-61-4P

RL: PREP (Preparation)

(electrochem. preparation of)

RN 143541-63-3 HCAPLUS

CN 4,7,10,13,16,19,22-Heptaaxapentacosane, 1,1,1,2,2,3,3,5,6,6,8,9,9,11,12,12

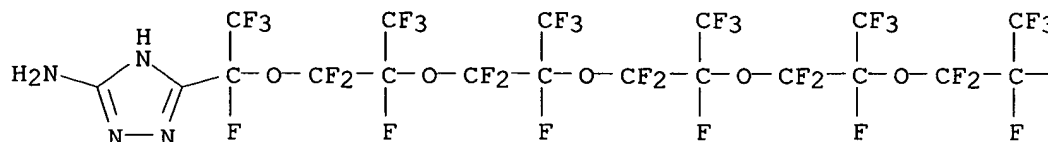
*PTFE prep  
but not same  
type radical*

169124-22-5DP, reaction products with metal salts  
 169124-26-9DP, reaction products with metal salts  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)

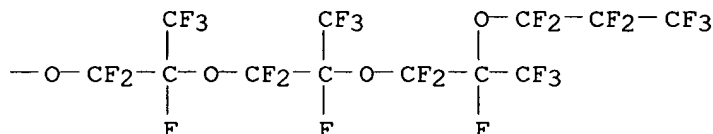
RN 169124-14-5 HCAPLUS

CN 1H-1,2,4-Triazol-3-amine, 5-[1,3,3,4,6,6,7,9,9,10,12,12,13,15,15,16,18,18,19,21,21,22,24,24,25,27,27,28,28,29,29,29-dotriacontafluoro-1,4,7,10,13,16,19,22,25-nonakis(trifluoromethyl)-2,5,8,11,14,17,20,23,26-nonaoxanonacos-1-yl]- (9CI) (CA INDEX NAME)

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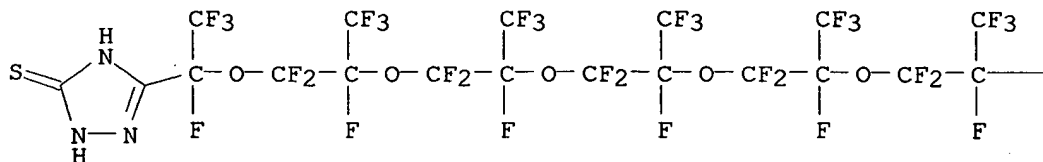
PAGE 1-B



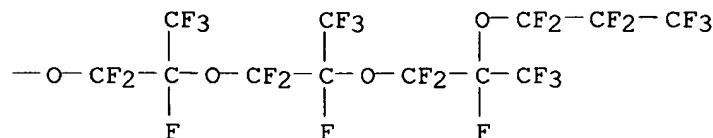
RN 169124-22-5 HCAPLUS

CN 3H-1,2,4-Triazole-3-thione, 5-[1,3,3,4,6,6,7,9,9,10,12,12,13,15,15,16,18,18,19,21,21,22,24,24,25,27,27,28,28,29,29,29-dotriacontafluoro-1,4,7,10,13,16,19,22,25-nonakis(trifluoromethyl)-2,5,8,11,14,17,20,23,26-nonaoxanonacos-1-yl]-1,2-dihydro- (9CI) (CA INDEX NAME)

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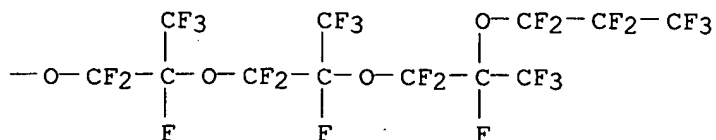
PAGE 1-B



RN 169124-26-9 HCAPLUS

CN 3H-1,2,4-Triazol-3-one, 5-[1,3,3,4,6,6,7,9,9,10,12,12,13,15,15,16,18,18,19,21,21,22,24,24,25,27,27,28,28,29,29,29-dotriacontafluoro-

PAGE 1-B



IT 169124-24-7P

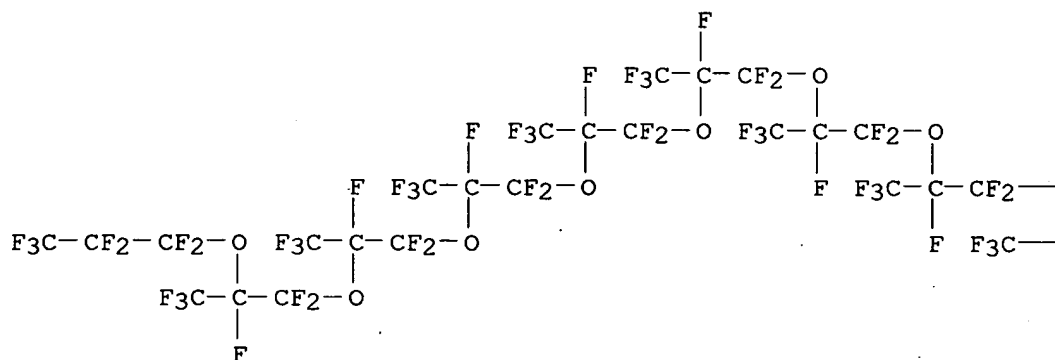
RL: SPN (Synthetic preparation); PREP (Preparation)

((perfluorooxaalkyl)triazoles and their reaction products with metal salts)

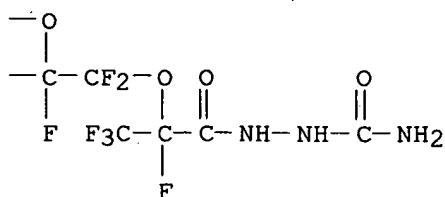
RN 169124-24-7 HCAPLUS

CN 3,6,9,12,15,18,21,24,27-Nonaoxatriacontanoic acid,  
2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,28,28,  
29,29,30,30,30-dotriacontafluoro-2,5,8,11,14,17,20,23,26-  
nonakis(trifluoromethyl)-, 2-(aminocarbonyl)hydrazide (9CI) (CA INDEX  
NAME)

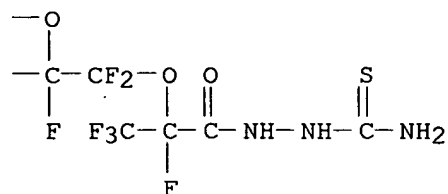
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PAGE 1-B

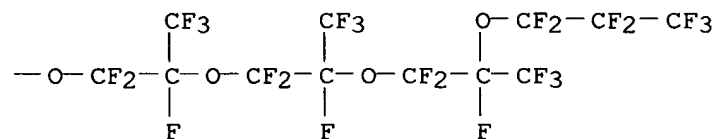
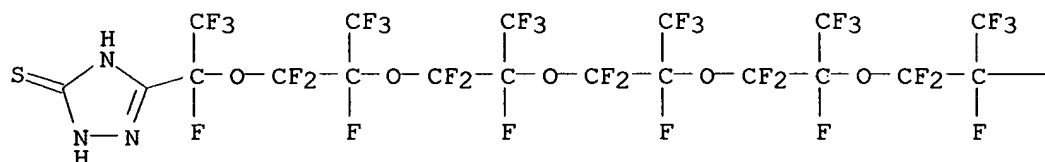


IT 169124-14-5DP, reaction products with metal salts



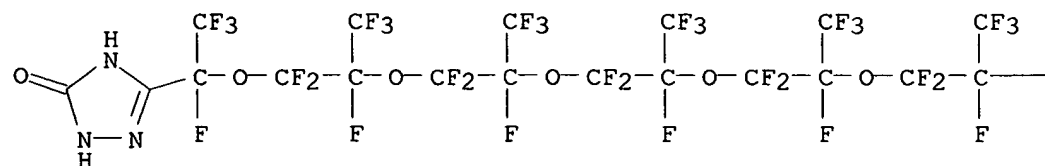
RN 169124-22-5 HCAPLUS

CN 3H-1,2,4-Triazole-3-thione, 5-[1,3,3,4,6,6,7,9,9,10,12,12,13,15,15,16,18,18,19,21,21,22,24,24,25,27,27,28,28,29,29,29-dotriacontafluoro-1,4,7,10,13,16,19,22,25-nonakis(trifluoromethyl)-2,5,8,11,14,17,20,23,26-nonaoxanonacos-1-yl]-1,2-dihydro- (9CI) (CA INDEX NAME)



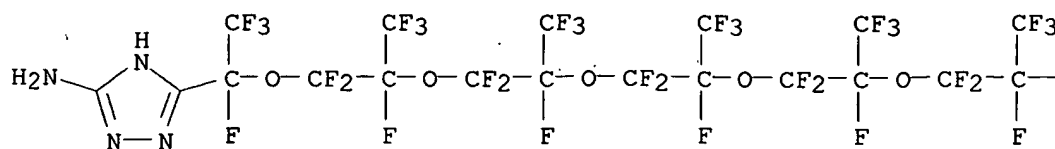
RN 169124-26-9 HCAPLUS

CN 3H-1,2,4-Triazol-3-one, 5-[1,3,3,4,6,6,7,9,9,10,12,12,13,15,15,16,18,18,19,21,21,22,24,24,25,27,27,28,28,29,29,29-dotriacontafluoro-1,4,7,10,13,16,19,22,25-nonakis(trifluoromethyl)-2,5,8,11,14,17,20,23,26-nonaoxanonacos-1-yl]-1,2-dihydro- (9CI) (CA INDEX NAME)

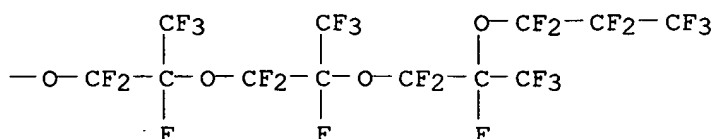




PAGE 1-A



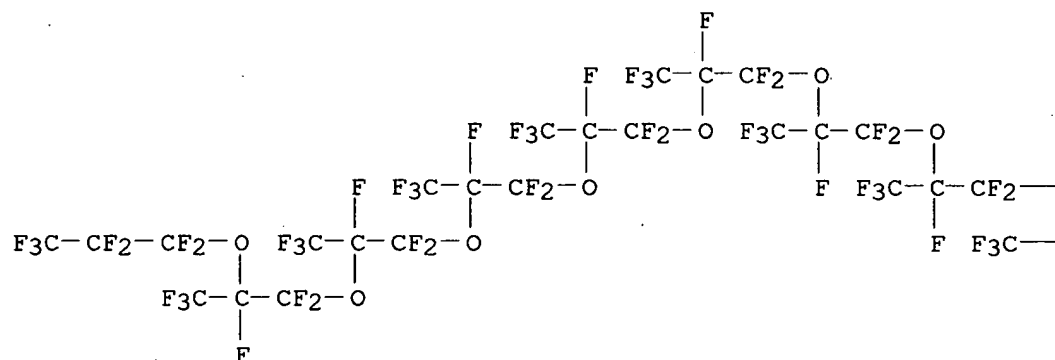
PAGE 1-B



RN 169124-18-9 HCAPLUS

CN 3,6,9,12,15,18,21,24,27-Nonaoxatriacontanoic acid,  
2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,28,28,  
29,29,30,30,30-dotriacontafluoro-2,5,8,11,14,17,20,23,26-  
nonakis(trifluoromethyl)-, 2-(aminothioxomethyl)hydrazide (9CI) (CA INDEX  
NAME)

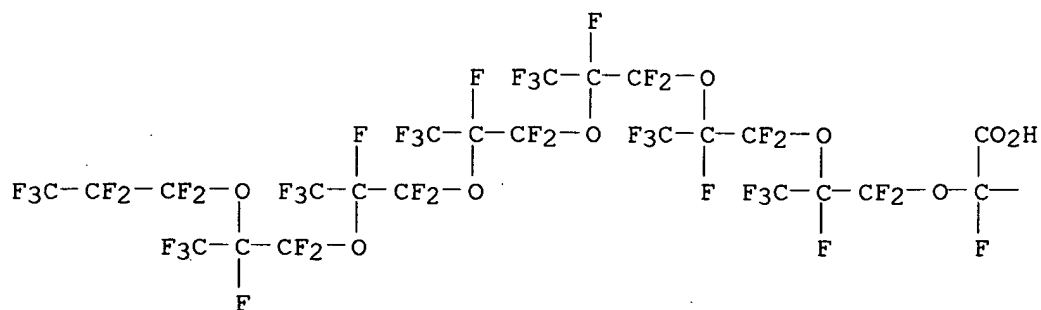
PAGE 1-A



$$\begin{array}{ccccccc}
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 & & & & & & | \\
 & & & & & & \text{F}_3\text{C}-\text{C}-\text{CF}_2-\text{O} \\
 & & & & & | & | \\
 & & & & \text{F} & \text{F}_3\text{C}-\text{C}-\text{CF}_2-\text{O} & \text{F}_3\text{C}-\text{C}-\text{CF}_2-\text{O} \\
 & & & | & | & | & | \\
 & & & \text{F}_3\text{C}-\text{C}-\text{CF}_2-\text{O} & \text{F}_3\text{C}-\text{C}-\text{CF}_2-\text{O} & \text{F}_3\text{C}-\text{C}-\text{CF}_2-\text{O} & \text{F}_3\text{C}-\text{C}-\text{CF}_2-\text{O} \\
 & & & | & | & | & | \\
 & & & \text{F} & \text{F} & \text{F} & \text{F} \\
 & & & | & | & | & | \\
 & & & \text{F}_3\text{C}-\text{C}-\text{CF}_2-\text{O} & \text{F}_3\text{C}-\text{C}-\text{CF}_2-\text{O} & \text{F}_3\text{C}-\text{C}-\text{CF}_2-\text{O} & \text{F}_3\text{C}-\text{C}-\text{CF}_2-\text{O} \\
 & & & | & | & | & | \\
 & & & \text{F}_3\text{C}-\text{CF}_2-\text{CF}_2-\text{O} & \text{F}_3\text{C}-\text{CF}_2-\text{CF}_2-\text{O} & \text{F}_3\text{C}-\text{CF}_2-\text{CF}_2-\text{O} & \text{F}_3\text{C}-\text{CF}_2-\text{CF}_2-\text{O} \\
 & & & | & | & | & | \\
 & & & \text{F}_3\text{C}-\text{C}-\text{CF}_2-\text{O} & \text{F}_3\text{C}-\text{C}-\text{CF}_2-\text{O} & \text{F}_3\text{C}-\text{C}-\text{CF}_2-\text{O} & \text{F}_3\text{C}-\text{C}-\text{CF}_2-\text{O} \\
 & & & | & | & | & | \\
 & & & \text{F} & \text{F} & \text{F} & \text{F}
 \end{array}$$
$$\begin{array}{ccccccc}
 \text{—O—} & & & & & & \\
 | & & & & & & \\
 \text{—C—} & \text{CF}_2\text{—} & \text{O} & & \text{O} & & \text{NH} \\
 | & & | & & || & & || \\
 \text{F} & & \text{F}_3\text{C—} & \text{C—} & \text{C—} & \text{NH—} & \text{NH—} & \text{C—} & \text{NH}_2 \\
 & & | & & & & & & \\
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 \end{array}$$

Page 60 searched 01/23/2007

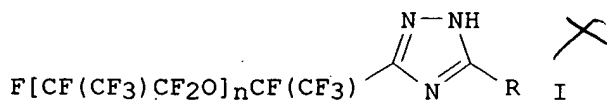
PAGE 1-A



PAGE 1-B

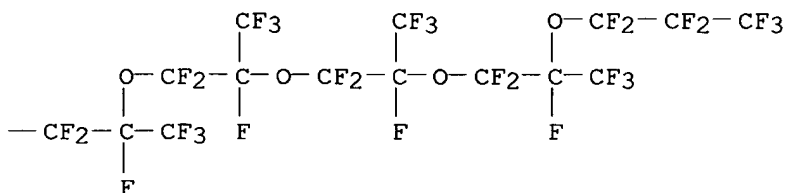
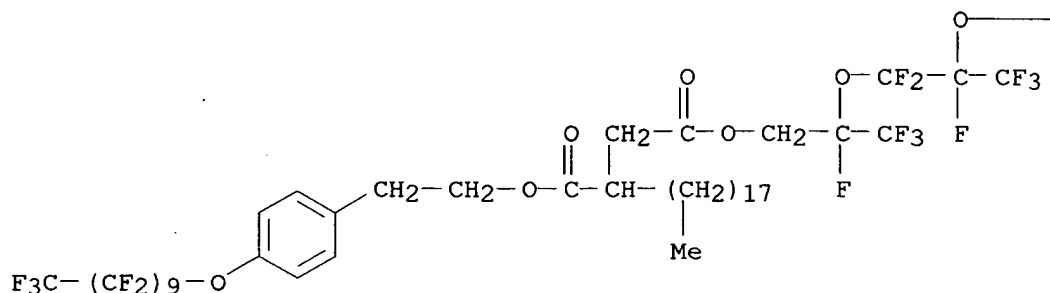
—CF<sub>3</sub>

L4 ANSWER 10 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1995:638072 HCAPLUS  
 DOCUMENT NUMBER: 123:256607  
 TITLE: Synthesis and properties of 3-perfluorooxaalkyl-substituted 1,2,4-triazoles  
 AUTHOR(S): Vershilov, S. V.; Popova, L. M.; Mungalov, V. E.; Kyabinin, N. A  
 CORPORATE SOURCE: Ross. Nauchn. Tsentr "Prikladnaya, St. Petersburg, Russia  
 SOURCE: Zhurnal Organicheskoi Khimii (1994), 30(8), 1241-4  
 CODEN: ZORKAE; ISSN: 0514-7492  
 PUBLISHER: Nauka  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Russian  
 GI



AB Title compds. I ( $n = 1, 2, 3, 9$ ;  $R = \text{NH}_2, \text{SH}$ ) were prepared by cyclization of  $\text{F}[\text{CF}(\text{CF}_3)\text{CF}_2\text{O}]_n\text{CF}(\text{CF}_3)\text{CONHNHC}(\text{NH}_2):\text{X}$  (same  $n$ ;  $X = \text{NH}, \text{S}$ ), which were obtained by acylation of aminoguanidine and thiosemicarbazide. Oxidative hydrolysis of I ( $n = 2, 9$ ,  $R = \text{SH}$ ) gave I ( $n = 2, 9$ ;  $R = \text{OH}$ ). Reaction products of these triazoles with metal salts were obtained.

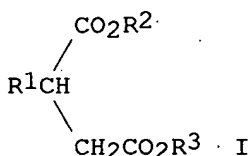
IT 169124-10-1P 169124-14-5P 169124-18-9P  
 169124-22-5P 169124-26-9P



L4 ANSWER 9 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 1995:755767 HCAPLUS  
DOCUMENT NUMBER: 123:339113  
TITLE: Esterification of perfluoropolyoxapolypropylenecarboxy-  
lic acid (n = 8)  
AUTHOR(S): Popova, L.; Zachinyaev, Ya.; Trishina, A.; Ryabinin,  
N.; Ginaks, A. I.  
CORPORATE SOURCE: St. Petersburg Tekhnol. Inst., Russia  
SOURCE: Latvijas Kimijas Zurnals (1994), (5), 619-20  
CODEN: LKZUE8; ISSN: 0868-8249  
PUBLISHER: Zinatne  
DOCUMENT TYPE: Journal  
LANGUAGE: Russian  
AB Esterification of CF3CF2CF2O[CF(CF3)CF2O]6CF(CF3)COOH with n-octadecyl  
alc. in CF2ClCFCl2 in the presence of catalytic amts. of chloroform gave  
the ester (I) in 97.6% yield. I was a surfactant.  
IT 65151-72-6P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)  
RN 65151-72-6 HCAPLUS  
CN 3,6,9,12,15,18,21-Hepta-oxatetracosanoic acid,  
2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,23,24,24,24-  
hexacosafuoro-2,5,8,11,14,17,20-heptakis(trifluoromethyl)- (9CI) (CA  
INDEX NAME)

recording media  
 INVENTOR(S): Kai, Yoshiaki; Mizuno, Naoko  
 PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan  
 SOURCE: U.S., 7 pp.  
 CODEN: USXXAM  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5391814	A	19950221	US 1993-38263	19930329
PRIORITY APPLN. INFO.: GI			JP 1992-40766	A 19920131



- AB A fluorine-containing alkylsuccinic acid diester of the formula: I, in which R1 is an aliphatic alkyl or alkenyl group, and one of R2 and R3 is a fluoroalkyl ether group and the other is a fluoroalkyl group, a fluoroalkenyl group, a fluorophenyl group, an aliphatic alkyl group or an aliphatic alkenyl group, which has excellent lubricity in an atmospheric having low to high humidity.  
 IT 167631-98-3P  
 RL: IMF (Industrial manufacture); MOA (Modifier or additive use);  
 PREP (Preparation); USES (Uses)  
 (fluorine-containing alkylsuccinic acid diester and preparation and use as a lubricant for magnetic recording media)  
 RN 167631-98-3 HCAPLUS  
 CN Butanedioic acid, octadecyl-, 1-[2-[4-[(heneicosafuorodecyl)oxy]phenyl]ethyl] 4-[2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,20,21,21,21-tricosafuoro-2,5,8,11,14,17-hexakis(trifluoromethyl)-3,6,9,12,15,18-hexaoxaheneicos-1-yl] ester (9CI) (CA INDEX NAME)

AT 203758	T	20010815	AT 1995-907911	19950130
US 5606098	A	19970225	US 1995-530233	19951003
PRIORITY APPLN. INFO.:			RU 1994-4093	A 19940204
			WO 1995-RU14	W 19950130

OTHER SOURCE(S): MARPAT 124:59838

AB The title compds. RFR1FZQ [RF = CF<sub>3</sub>O, C<sub>2</sub>F<sub>5</sub>O, C<sub>3</sub>F<sub>7</sub>O, C<sub>8</sub>F<sub>17</sub>O; R1F = (CFCF<sub>3</sub>CF<sub>2</sub>O)<sub>n</sub>CFCF<sub>3</sub>, (CF<sub>2</sub>CF<sub>2</sub>O)<sub>n</sub>CF<sub>2</sub>, (CF<sub>2</sub>CF<sub>2</sub>CF<sub>2</sub>O)<sub>n</sub>CF<sub>2</sub>CF<sub>2</sub>; Z = CO, SO<sub>2</sub>; Q = N(CmH<sub>2</sub>mOH)<sub>2</sub>, N[(C<sub>2</sub>H<sub>4</sub>O)<sub>4</sub>C<sub>3</sub>H<sub>6</sub>OH]<sub>2</sub>, NHC<sub>2</sub>H<sub>4</sub>OR<sub>n</sub>, NH(C<sub>2</sub>H<sub>4</sub>O)<sub>5</sub>H, OClH<sub>2</sub>lN(ClH<sub>2</sub>lOH)<sub>2</sub>; CkH<sub>2</sub>k+1O; R<sub>n</sub> = Me, Et, Pr; k = 6, 8, 10; l = 2, 4; m = 2-4, 6, 8, 10; n = 8-55], useful as protective additives in anticorrosion coatings and antifriction additives in lubricants (no data), are prepared by mixing an acid fluoride with a secondary or tertiary amine or alkanolamine at -25 to 8° or alternatively with a higher fatty alc. and with a compound chosen from an alkali metal or alkaline earth metal fluoride, ammonium or Al fluoride, and alkali metal (bi)carbonate. The mixture is subsequently heated to 40-60° and allowed to stand at that temperature for 0.6-3.0 h before the target product is isolated. Thus, 0.02 mol acid fluoride CF<sub>3</sub>O(CFCF<sub>3</sub>CF<sub>2</sub>O)<sub>8</sub>CFCF<sub>3</sub>COF was mixed with 0.024 mol HN(CH<sub>2</sub>CH<sub>2</sub>OH)<sub>2</sub> and 0.03 mol NH<sub>4</sub>F at 5° and the mixture was heated for 40 min at 60° to give 93% CF<sub>3</sub>O(CFCF<sub>3</sub>CF<sub>2</sub>O)<sub>8</sub>CFCF<sub>3</sub>CON(CH<sub>2</sub>CH<sub>2</sub>OH)<sub>2</sub> having solidification point -65°.

IT 171407-33-3P

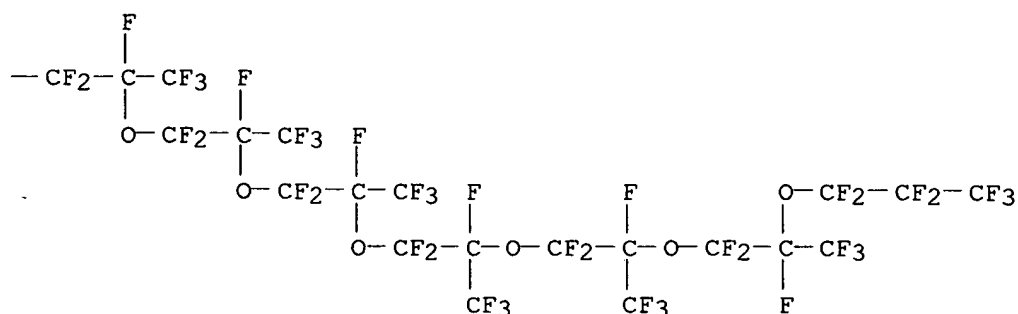
RL: IMF (Industrial manufacture); PREP (Preparation)  
(manufacture of amides and esters of perfluoropolyoxyalkylenesulfonic or -carboxylic acids)

RN 171407-33-3 HCAPLUS

CN 3,6,9,12,15,18,21,24,27,30,33,36,39-Tridecaoxadotetracontanamide,  
2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,28,28,  
29,31,31,32,34,34,35,37,37,38,40,40,41,41,42,42,42-tetratetracontafluoro-  
N,N-bis(10-hydroxydecyl)-2,5,8,11,14,17,20,23,26,29,32,35,38-  
tridecakis(trifluoromethyl)- (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

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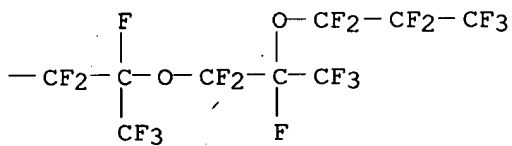
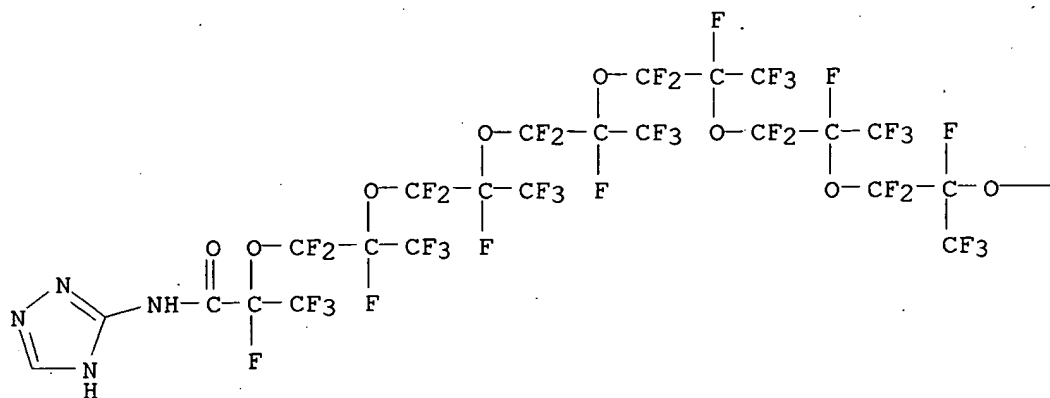


L4 ANSWER 8 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1995:787160 HCAPLUS

DOCUMENT NUMBER: 123:345450

TITLE: Fluorine-containing alkylsuccinic acid diester and its  
preparation and use as a lubricant for magnetic



L4 ANSWER 7 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1995:982335 HCAPLUS

DOCUMENT NUMBER: 124:59838

TITLE: Manufacture of amides and esters of perfluoropolyoxalkylenesulfonic or -carboxylic acids  
 INVENTOR(S): Ryabinin, Nikolai Alexandrovich; Ryabinin, Alexandr Nikolaevich

PATENT ASSIGNEE(S): Ao Avtokoninvest, Russia

SOURCE: PCT Int. Appl., 24 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Russian

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9521209	A1	19950810	WO 1995-RU14	19950130
W: JP, US				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
RU 2045544	C1	19951010	RU 1994-4093	19940204
EP 693514	A1	19960124	EP 1995-907911	19950130
EP 693514	B1	20010801		
R: AT, BE, DE, ES, FR, GB, GR, IT, SE				

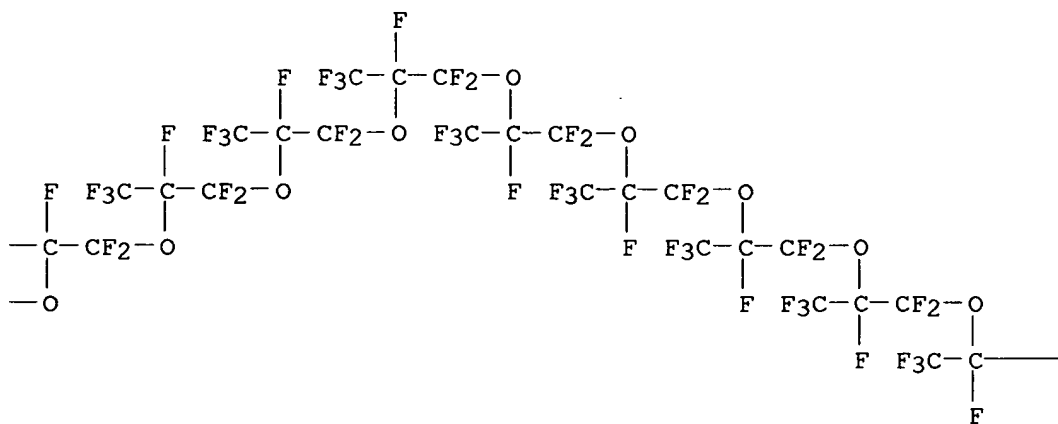
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homologs*

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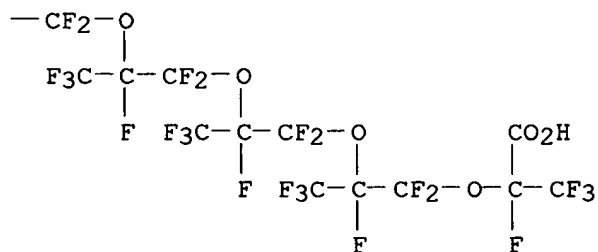




PAGE 1-B



PAGE 1-C

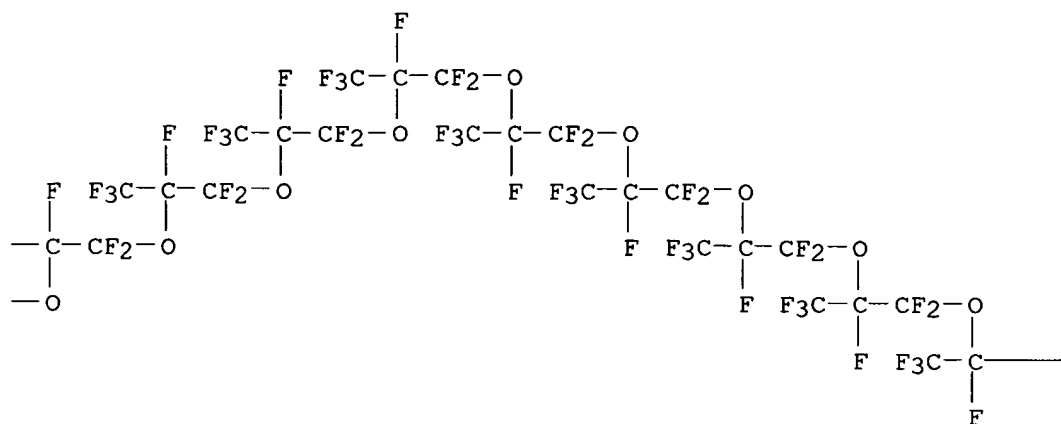


● 1/2 Pb (II)

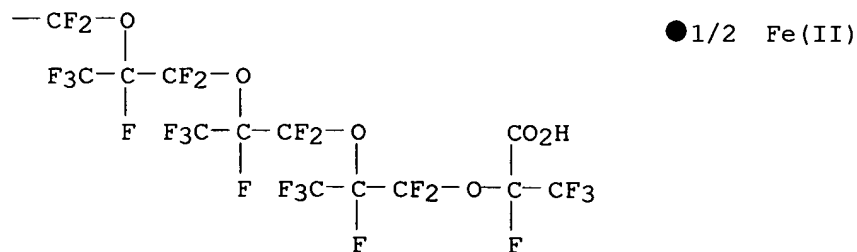
RN	185319-53-3	HCAPLUS
CN	3,6,9,12,15,18,21,24,27-Nonaoxatriacontanamide, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,28,28, 29,29,30,30,30-dotriacontafluoro-N-1H-1,2,4-triazol-3-yl- 2,5,8,11,14,17,20,23,26-nonakis(trifluoromethyl)- (9CI) (CA INDEX NAME)	



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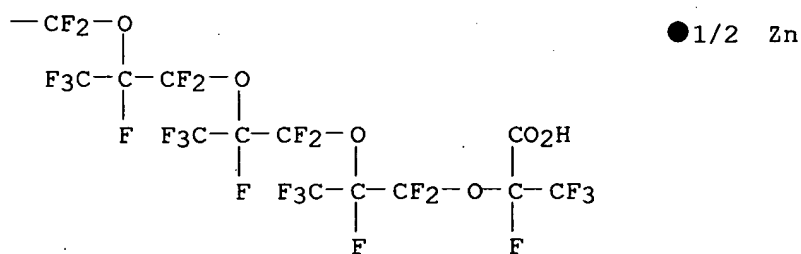


PAGE 1-C

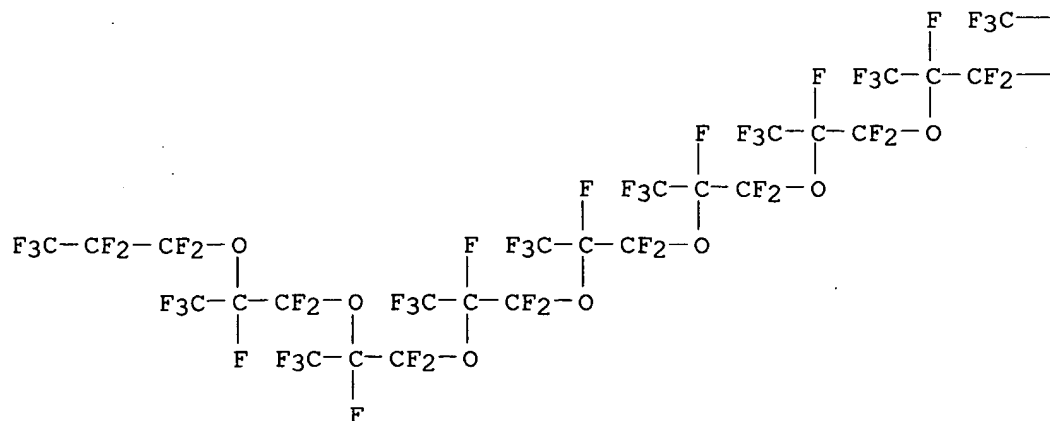


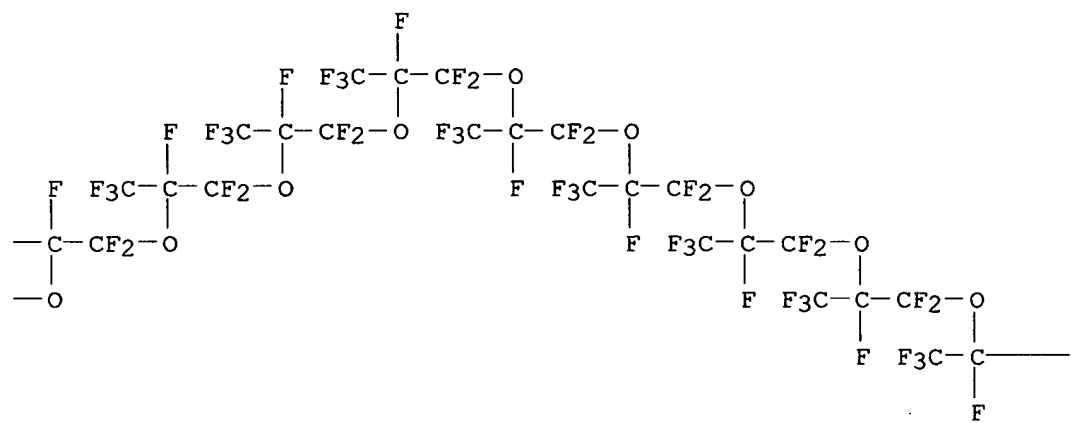
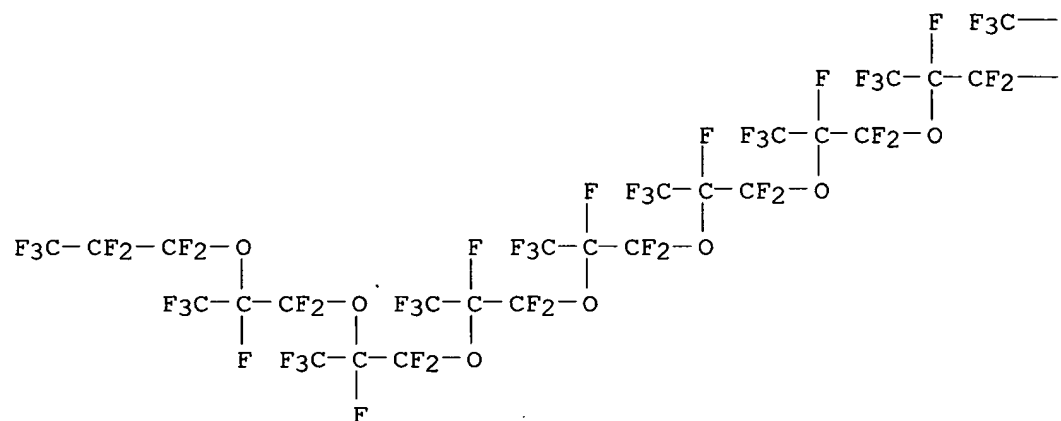
RN 185319-48-6 HCAPLUS

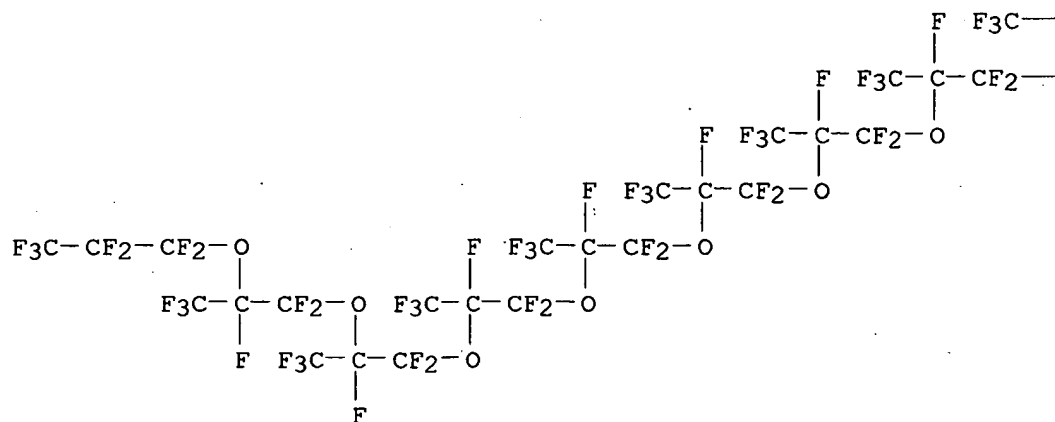
CN 3,6,9,12,15,18,21,24,27,30,33,36,39,42,45,48,51,54,57,60-  
Eicosaoxatrihexacontanoic acid, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,1  
9,19,20,22,22,23,25,25,26,28,28,29,31,31,32,34,34,35,37,37,38,40,40,41,43,  
43,44,46,46,47,49,49,50,52,53,55,55,56,58,58,59,61,61,62,62,63,63,63-  
pentaheptafluoro-2,5,8,11,14,17,20,23,26,29,32,35,38,41,44,47,50,53,56  
,59-eicosakis(trifluoromethyl)-, chromium(3+) salt (9CI) (CA INDEX NAME)



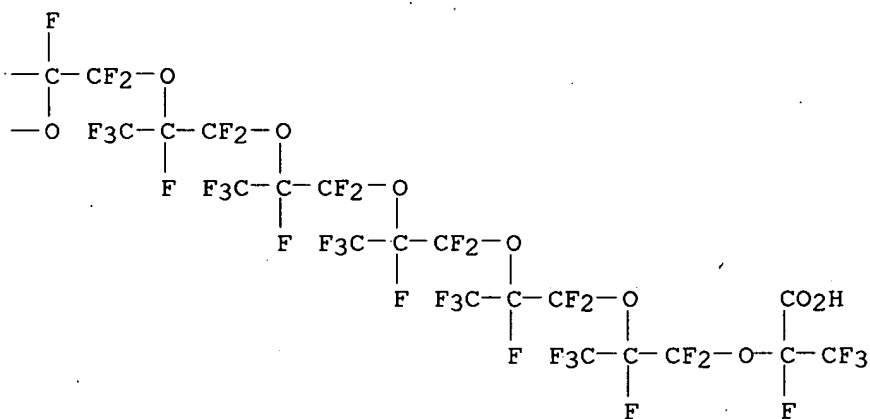
RN	185319-47-5	HCAPLUS
CN	3,6,9,12,15,18,21,24,27,30,33,36,39,42,45,48,51,54,57,60- Eicosaoxatrihexacontanoic acid, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,1 9,19,20,22,22,23,25,25,26,28,28,29,31,31,32,34,34,35,37,37,38,40,40,41,43, 43,44,46,46,47,49,49,50,52,52,53,55,55,56,58,58,59,61,61,62,62,63,63,63- pentaheptacontafluoro-2,5,8,11,14,17,20,23,26,29,32,35,38,41,44,47,50,53,56 -59-eicosakis(trifluoromethyl)-, iron(2+) salt (9CI) (CA INDEX NAME)	







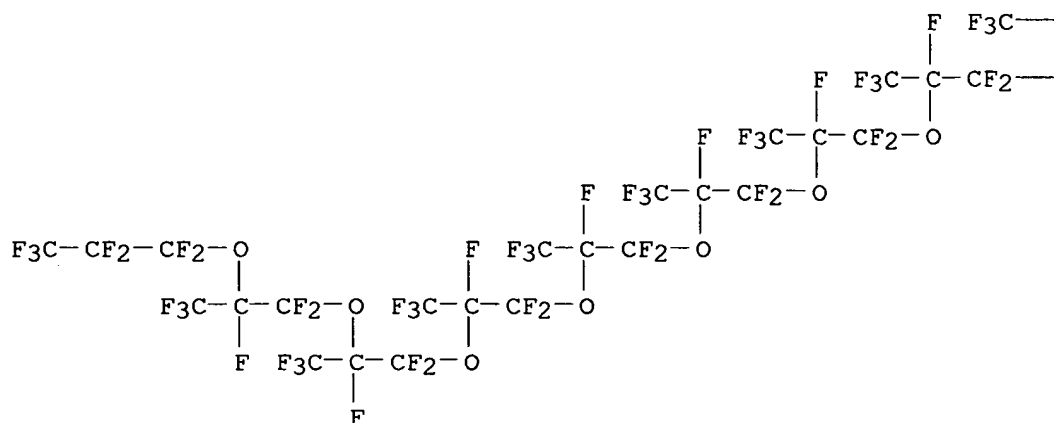
●<sub>1/2</sub> Co (II)



RN 185319-46-4 HCAPLUS

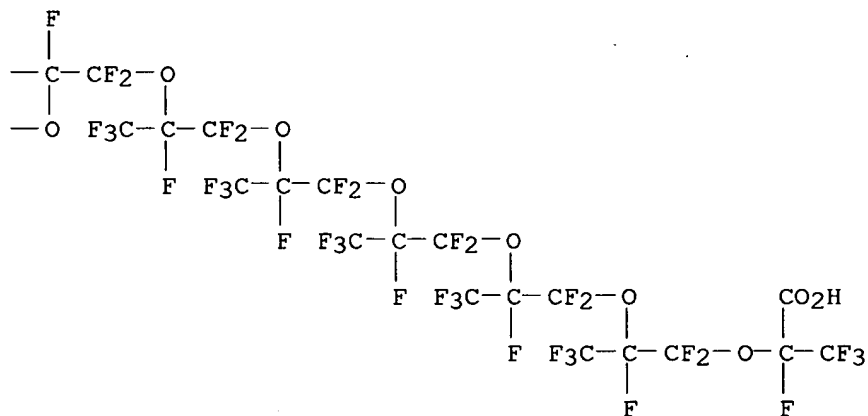
CN 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48, 51, 54, 57, 60-

Eicosaoxatrihexacontanoic acid, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,28,28,29,31,31,32,34,34,35,37,37,38,40,40,41,43,43,44,46,46,47,49,49,50,52,52,53,55,55,56,58,58,59,61,61,62,62,63,63,63-pentahexacontafluoro-2,5,8,11,14,17,20,23,26,29,32,35,38,41,44,47,50,53,56,59-eicosakis(trifluoromethyl)-, zinc salt (9CI) (CA INDEX NAME)



● 1/2 Cu(II)

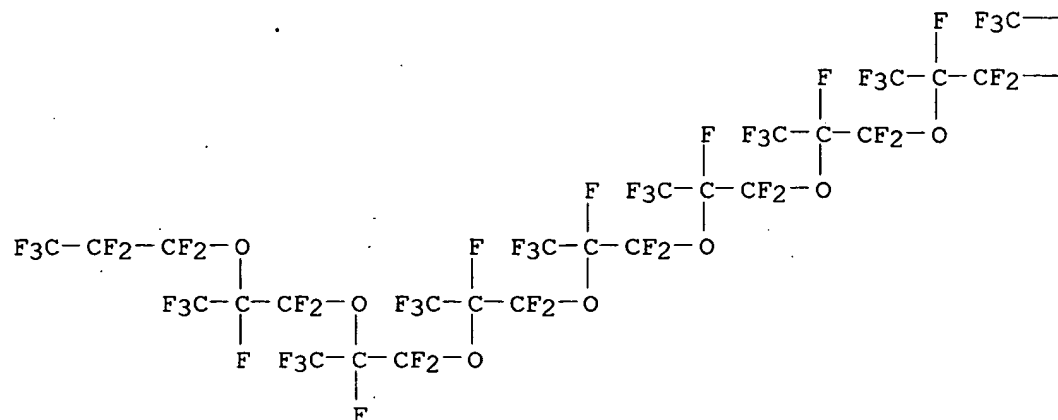
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RN	185319-45-3	HCAPLUS
CN	3,6,9,12,15,18,21,24,27,30,33,36,39,42-Tetradeca-oxapentatetracontanoic acid, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,28,28,29,31,31,32,34,34,35,37,37,38,40,40,41,43,43,44,44,45,45,45-heptatetracontafluoro-2,5,8,11,14,17,20,23,26,29,32,35,38,41-tetradecakis(trifluoromethyl)-, cobalt(2+) salt (9CI) (CA INDEX NAME)	

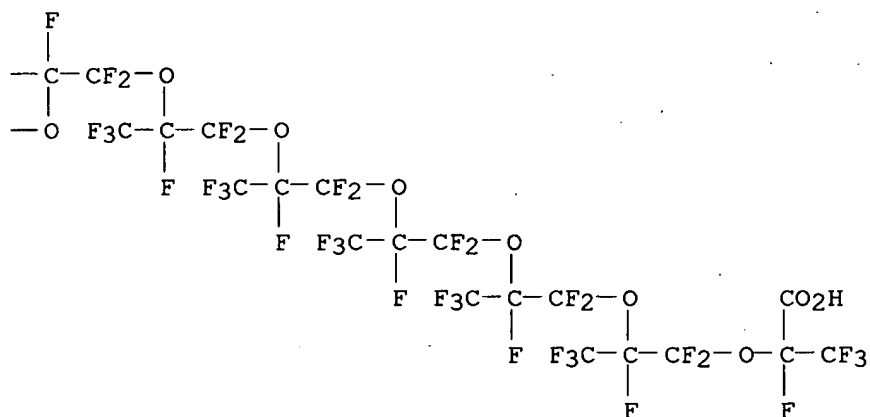


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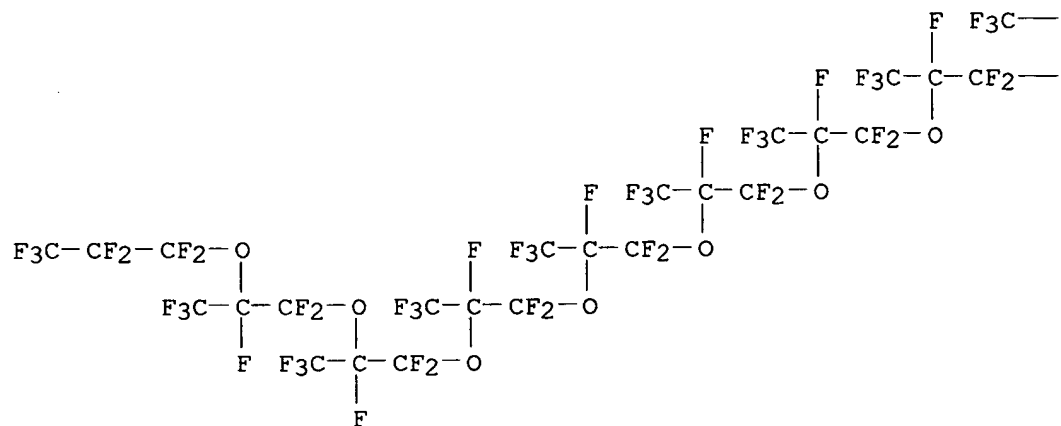
●1/2 Ni(II)

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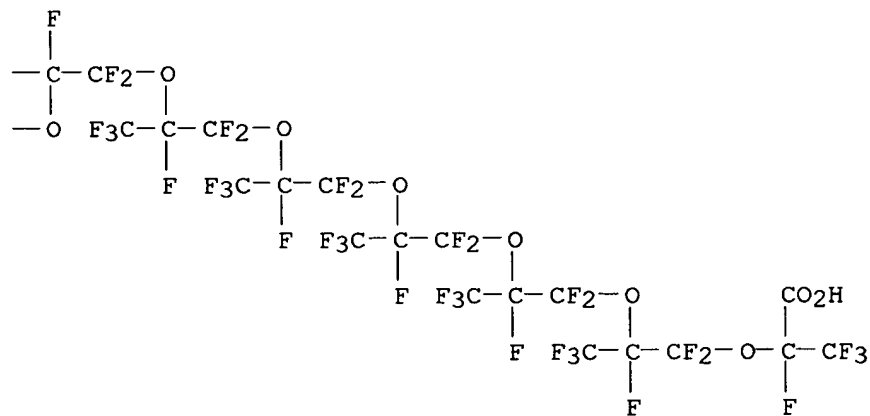
RN 185319-44-2 HCAPLUS

CN 3,6,9,12,15,18,21,24,27,30,33,36,39,42-Tetradeca-oxapentatetracontanoic acid, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,28,28,29,31,31,32,34,34,35,37,37,38,40,40,41,43,43,44,44,45,45,45-heptatetracontafluoro-2,5,8,11,14,17,20,23,26,29,32,35,38,41-tetradecakis(trifluoromethyl)-, copper(2+) salt (9CI) (CA INDEX NAME)



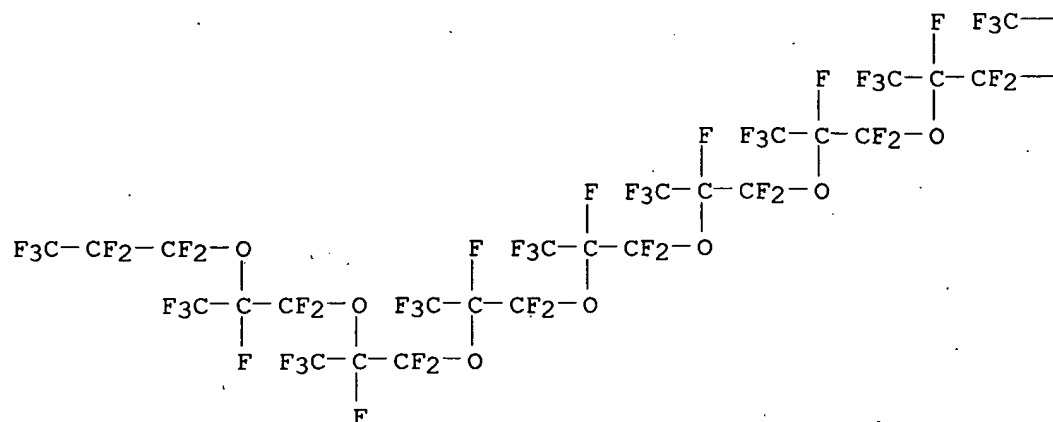
● 1/2 Pb (II)

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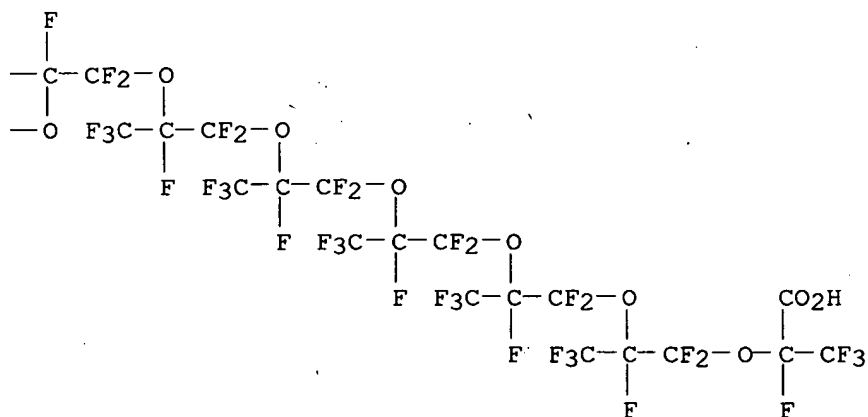
CN 3,6,9,12,15,18,21,24,27,30,33,36,39,42-Tetradecaioxapentatetracontanoic acid, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,28,28,29,31,31,32,34,34,35,37,37,38,40,40,41,43,43,44,44,45,45,45-heptatetracontafluoro-, 5,8,11,14,17,20,23,26,29,32,35,38,41-tetradecakis(trifluoromethyl)-, nickel(2+) salt (9CI) (CA INDEX NAME)

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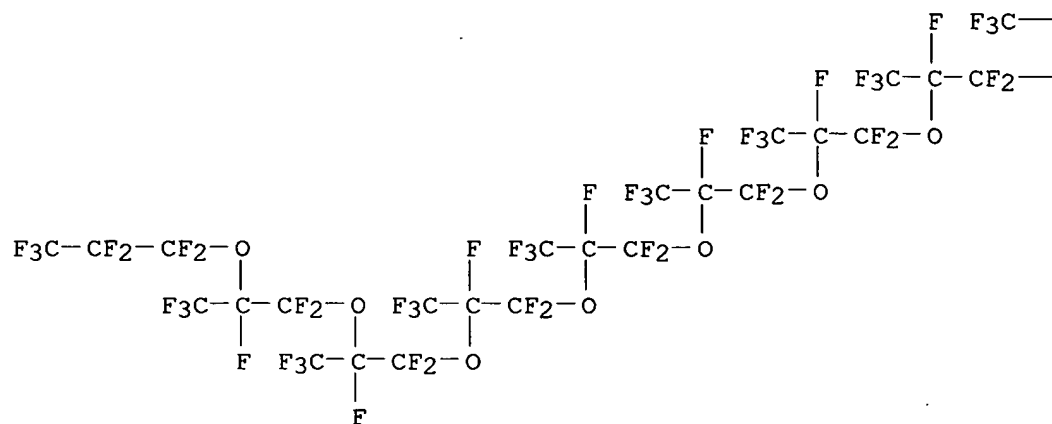
● 1/2 Fe (II)

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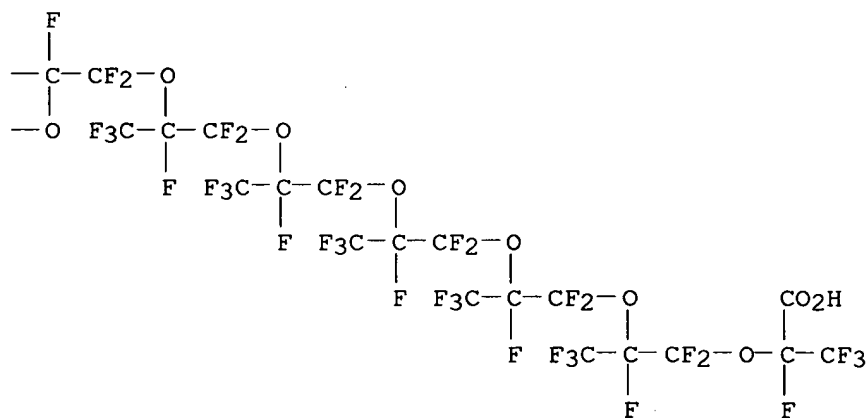


RN 185319-42-0 HCAPLUS

CN 3,6,9,12,15,18,21,24,27,30,33,36,39,42-Tetradecaioxapentatetracontanoic  
acid, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,  
28,28,29,31,31,32,34,34,35,37,37,38,40,40,41,43,43,44,44,45,45,45-  
heptatetracontafluoro-2,5,8,11,14,17,20,23,26,29,32,35,38,41-  
tetradecakis(trifluoromethyl)-, lead(2+) salt (9CI) (CA INDEX NAME)



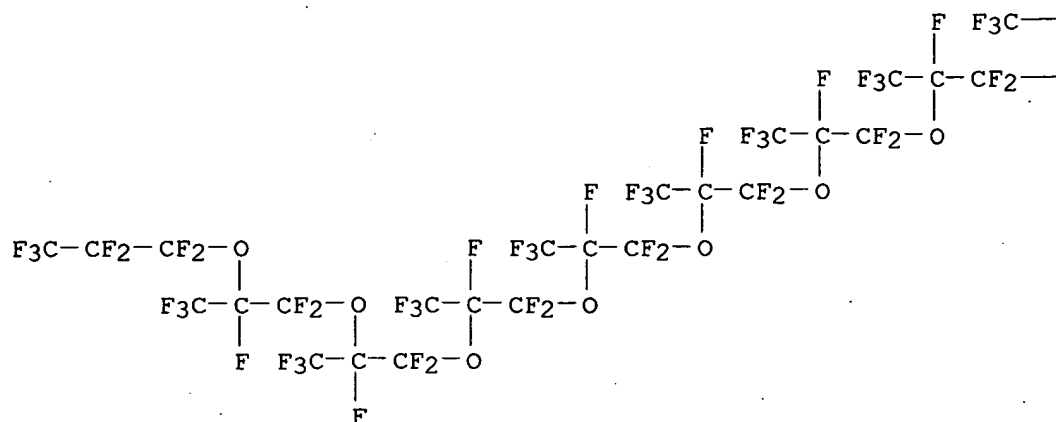
● 1/3 Cr (III)



RN 185319-41-9 HCAPLUS

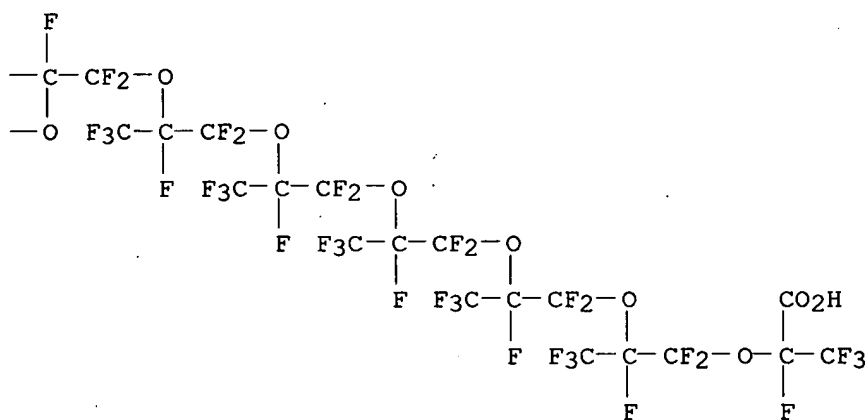
CN 3,6,9,12,15,18,21,24,27,30,33,36,39,42-Tetradecaoxapentatetracontanoic acid, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,28,28,29,31,31,32,34,34,35,37,37,38,40,40,41,43,43,44,44,45,45,45-heptatetracontafluoro-, 5,8,11,14,17,20,23,26,29,32,35,38,41-tetradecakis(trifluoromethyl)-, iron(2+) salt (9CI) (CA INDEX NAME)

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●<sub>1/2</sub> Zn

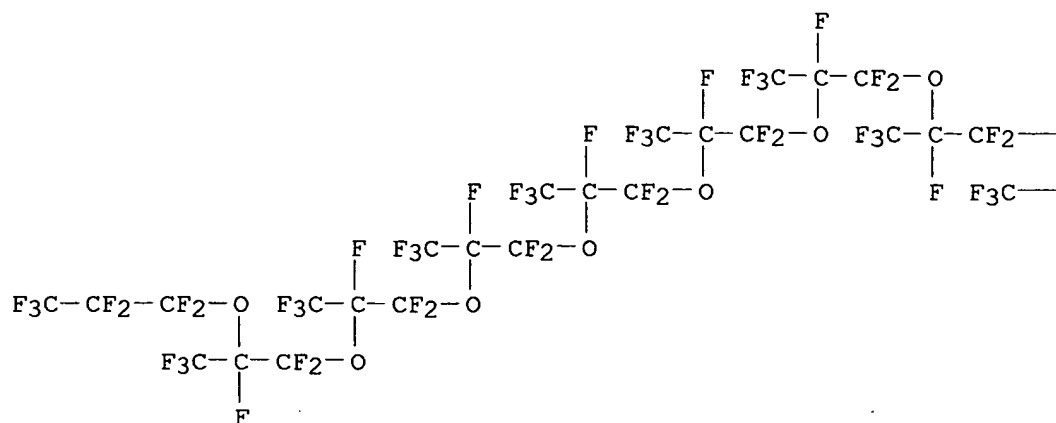
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RN 185319-40-8 HCAPLUS

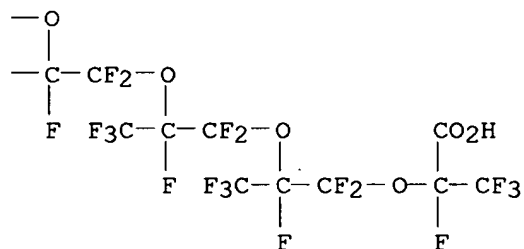
CN 3,6,9,12,15,18,21,24,27,30,33,36,39,42-Tetradecaioxapentatetracontanoic acid, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,28,28,29,31,31,32,34,34,35,37,37,38,40,40,41,43,43,44,44,45,45,45-heptatetracontafluoro-2,5,8,11,14,17,20,23,26,29,32,35,38,41-tetradecakis(trifluoromethyl)-, chromium(3+) salt (9CI) (CA INDEX NAME)

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● 1/2 Mn(II)

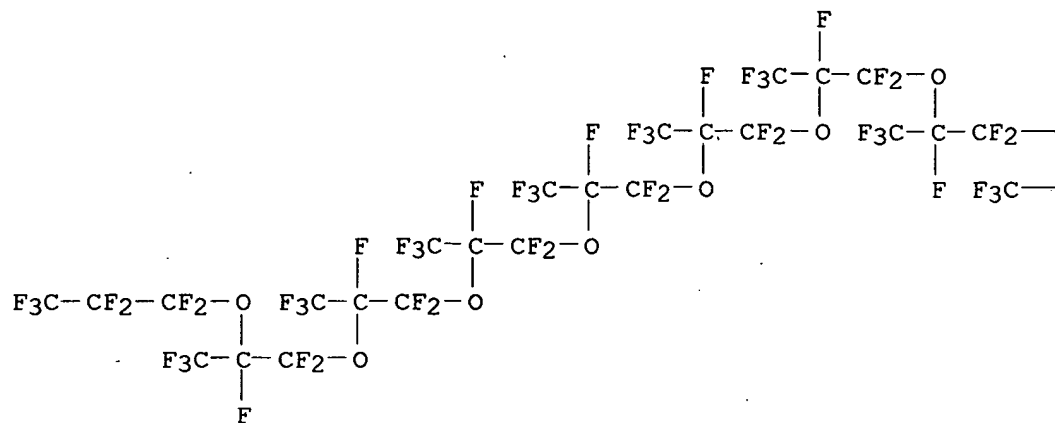
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RN 185319-39-5 HCAPLUS

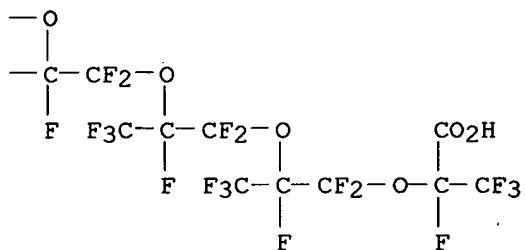
CN 3,6,9,12,15,18,21,24,27,30,33,36,39,42-Tetradeca-oxapentatetracontanoic acid, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,28,28,29,31,31,32,34,34,35,37,37,38,40,40,41,43,43,44,44,45,45,45-heptatetracontafluoro-2,5,8,11,14,17,20,23,26,29,32,35,38,41-tetradecakis(trifluoromethyl)-, zinc salt (9CI) (CA INDEX NAME)

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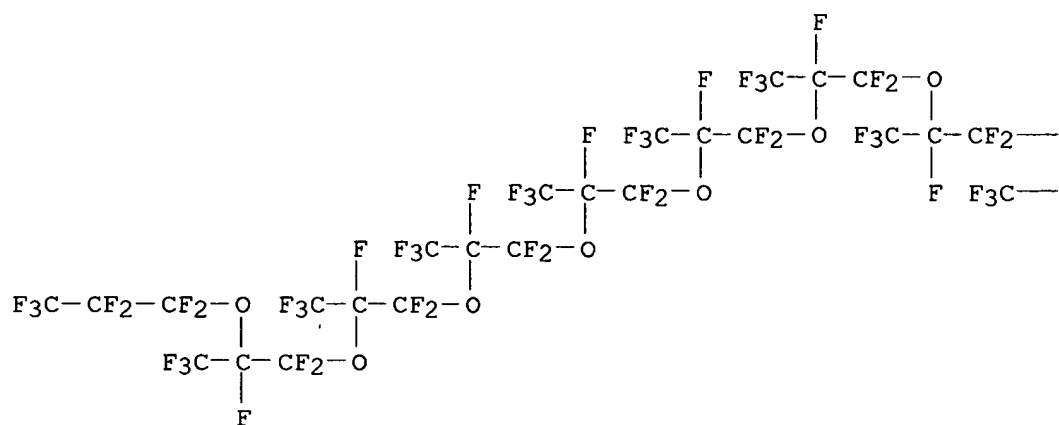
● 1/2 Co(II)

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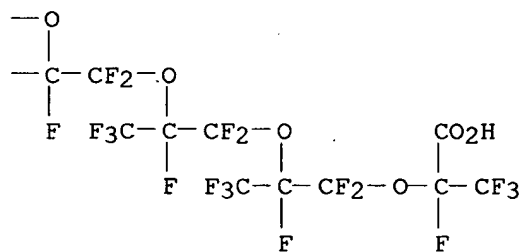
RN 185319-38-4 HCAPLUS  
 CN 3,6,9,12,15,18,21,24,27,30,33-Undeca-oxahexatriacontanoic acid,  
 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,28,28,  
 29,31,31,32,34,34,35,35,36,36,36-octatriacontafluoro-  
 2,5,8,11,14,17,20,23,26,29,32-undecakis(trifluoromethyl)-, manganese(2+)  
 salt (9CI) (CA INDEX NAME)

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● 1/2 Ni(II)

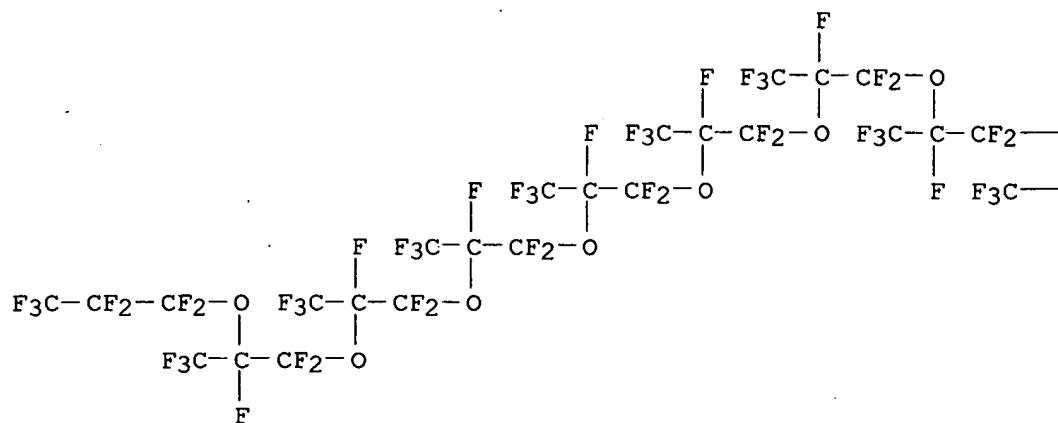
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RN 185319-37-3 HCAPLUS  
 CN 3,6,9,12,15,18,21,24,27,30,33-Undeca-oxahexatriacontanoic acid,  
 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,28,28,  
 29,31,31,32,34,34,35,35,36,36,36-octatriacontafluoro-  
 2,5,8,11,14,17,20,23,26,29,32-undecakis(trifluoromethyl)-, cobalt(2+) salt  
 (9CI) (CA INDEX NAME)

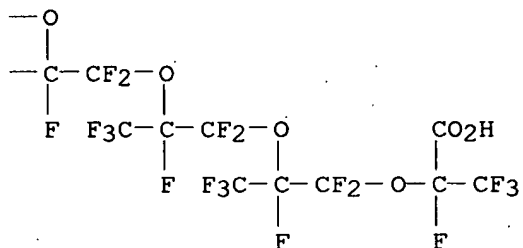


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● 1/2 Pb(II)

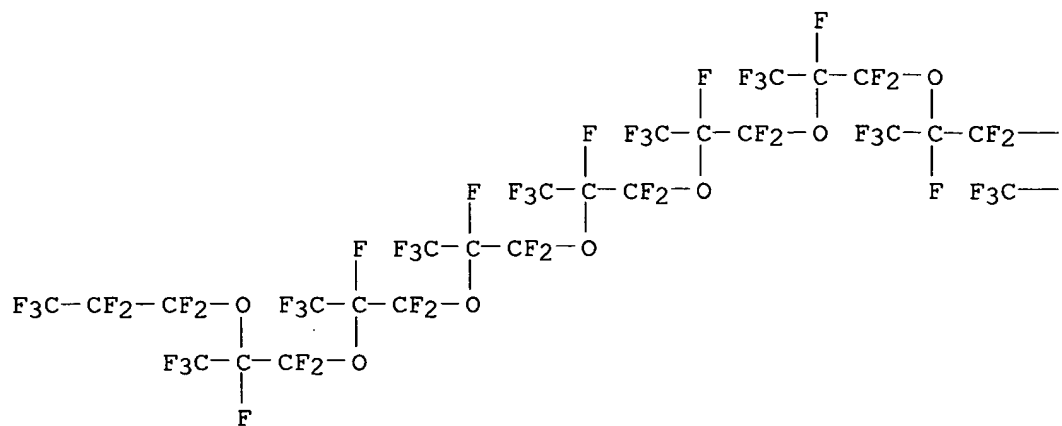
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RN 185319-36-2 HCAPLUS

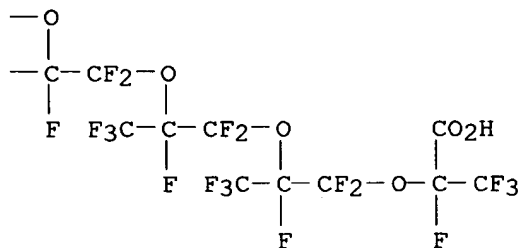
CN 3,6,9,12,15,18,21,24,27,30,33-Undeca-oxahexatriacontanoic acid,  
 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,28,28,  
 29,31,31,32,34,34,35,35,36,36,36-octatriacontafluoro-  
 2,5,8,11,14,17,20,23,26,29,32-undecakis(trifluoromethyl)-, nickel(2+) salt  
 (9CI) (CA INDEX NAME)

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● 1/3 Cr (III)

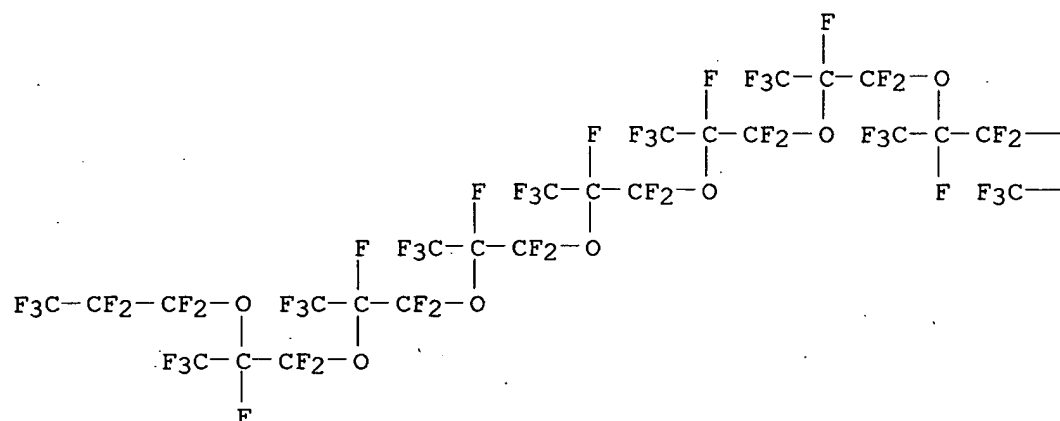
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RN 185319-35-1 HCAPLUS

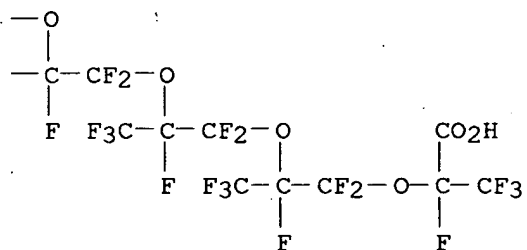
CN 3,6,9,12,15,18,21,24,27,30,33-Undeca-oxahexatriacontanoic acid,  
2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,28,28,  
29,31,31,32,34,34,35,35,36,36,36-octatriacontafluoro-  
2,5,8,11,14,17,20,23,26,29,32-undecakis(trifluoromethyl)-, lead(2+) salt  
(9CI) (CA INDEX NAME)

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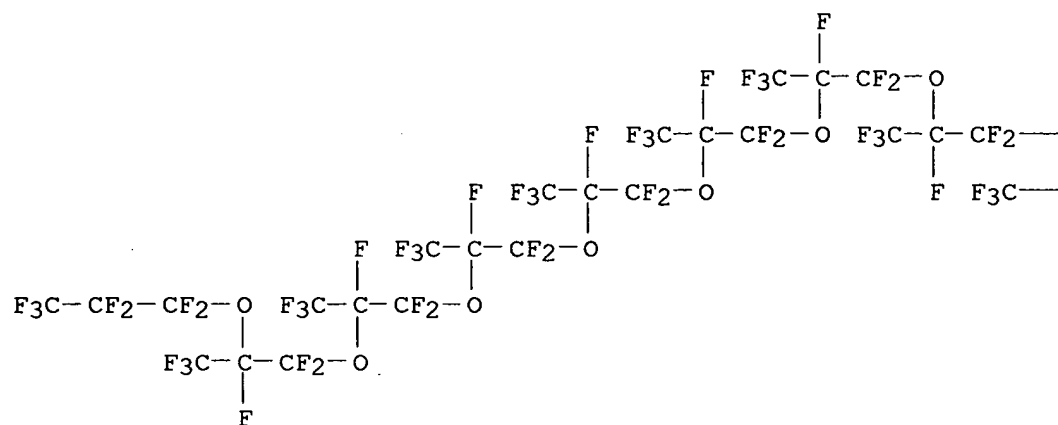
● 1/2 Fe(II)

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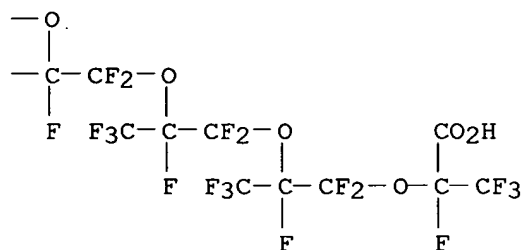
RN 185319-34-0 HCAPLUS  
 CN 3,6,9,12,15,18,21,24,27,30,33-Undeca-oxahexatriacontanoic acid,  
 2,4,4,5,7,7,8,10,10,11,13,13,14,16,17,19,19,20,22,22,23,25,25,26,28,28,  
 29,31,31,32,34,34,35,35,36,36,36-octatriacontafluoro-  
 2,5,8,11,14,17,20,23,26,29,32-undecakis(trifluoromethyl)-, chromium(3+)  
 salt (9CI) (CA INDEX NAME)

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● 1/2 Cu(II)

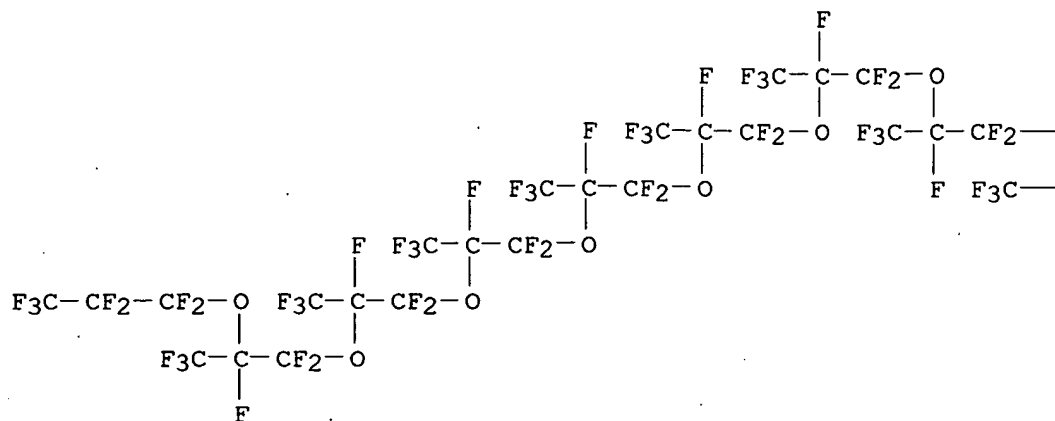
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RN 185319-33-9 HCAPLUS

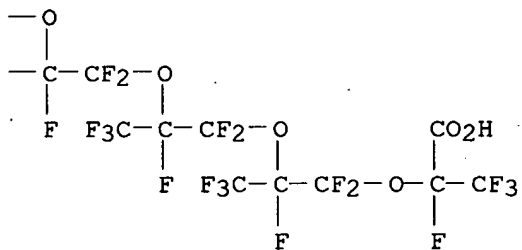
CN 3,6,9,12,15,18,21,24,27,30,33-Undeca-oxahexatriacontanoic acid,  
 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,28,28,  
 29,31,31,32,34,34,35,35,36,36,36-octatriacontafluoro-  
 2,5,8,11,14,17,20,23,26,29,32-undecakis(trifluoromethyl)-, iron(2+) salt  
 (9CI) (CA INDEX NAME)

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● 1/2 Zn

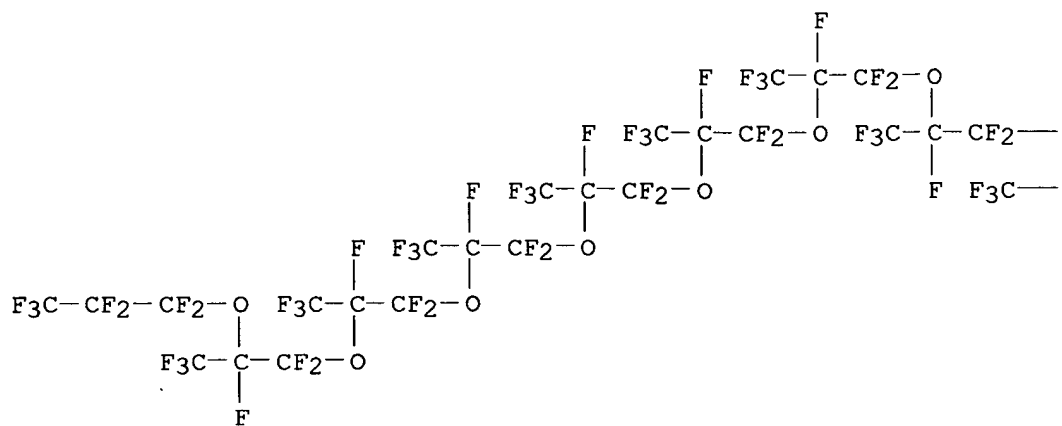
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RN 185319-32-8 HCAPLUS

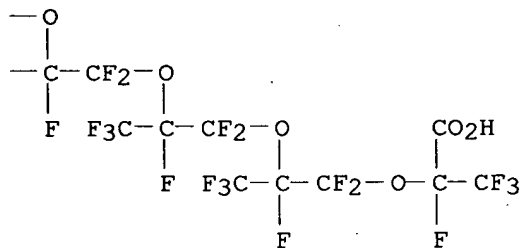
CN 3,6,9,12,15,18,21,24,27,30,33-Undecaoxahehexatriacontanoic acid,  
 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,28,28,  
 29,31,31,32,34,34,35,35,36,36,36-octatriacontafuoro-  
 2,5,8,11,14,17,20,23,26,29,32-undecakis(trifluoromethyl)-, copper(2+) salt  
 (9CI) (CA INDEX NAME)

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● 1/3 Al

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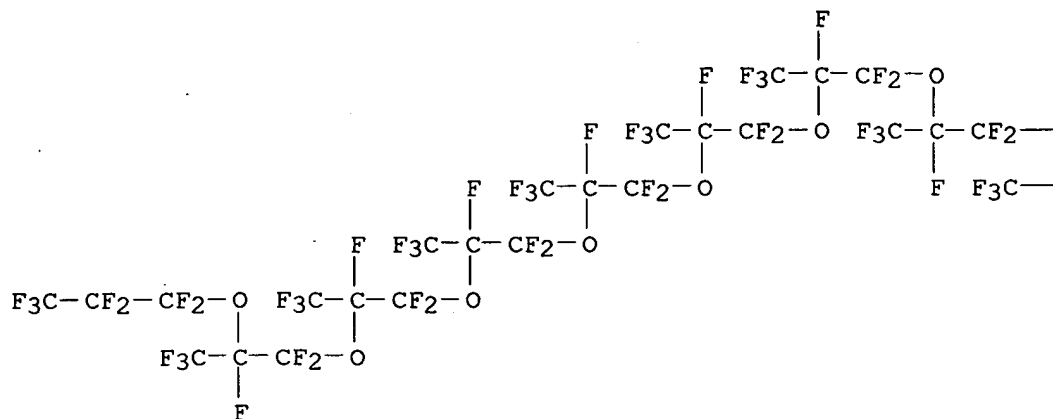


RN 185319-31-7 HCAPLUS

CN	3,6,9,12,15,18,21,24,27,30,33-Undeca-oxahexatriacontanoic acid, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,28,28, 29,31,31,32,34,34,35,35,36,36,36-octatriacontafluoro- 2,5,8,11,14,17,20,23,26,29,32-undecakis(trifluoromethyl)-, zinc salt (9CI) (CA INDEX NAME)
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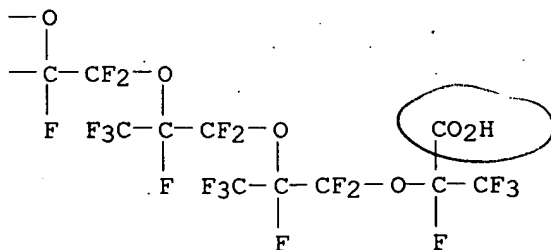
2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,28,28,  
29,31,31,32,34,34,35,35,36,36,36-octatriacontafluoro-  
2,5,8,11,14,17,20,23,26,29,32-undecakis(trifluoromethyl)-, lithium salt  
(9CI) (CA INDEX NAME)

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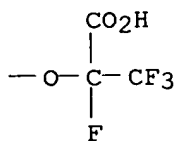
● Li

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RN 185319-30-6 HCAPLUS  
CN 3,6,9,12,15,18,21,24,27,30,33-Undecaaxahexatriacontanoic acid,  
2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,28,28,  
29,31,31,32,34,34,35,35,36,36,36-octatriacontafluoro-  
2,5,8,11,14,17,20,23,26,29,32-undecakis(trifluoromethyl)-, aluminum salt  
(9CI) (CA INDEX NAME)

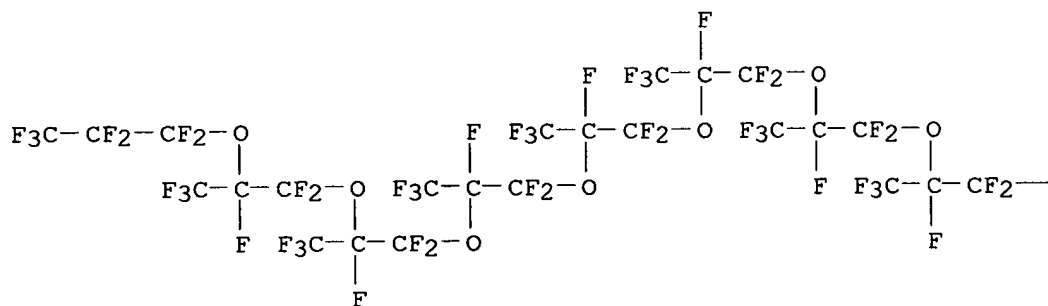
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RN 185319-28-2 HCAPLUS

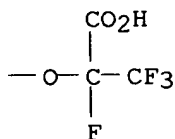
CN 3,6,9,12,15,18,21,24-Octaoxaheptacosanoic acid,  
2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,26,27,  
27,27-nonacosafuoro-2,5,8,11,14,17,20,23-octakis(trifluoromethyl)-,  
lead(2+) salt (9CI) (CA INDEX NAME)

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● 1/2 Pb(II)

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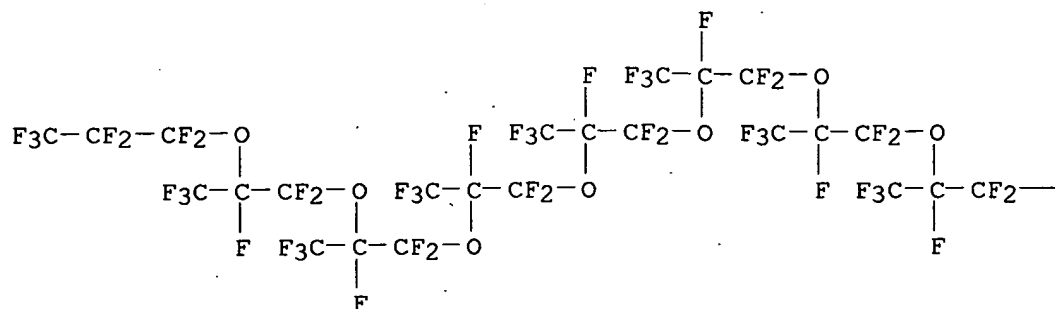


RN 185319-29-3 HCAPLUS

CN 3,6,9,12,15,18,21,24,27,30,33-Undecaoxahexatriacontanoic acid,

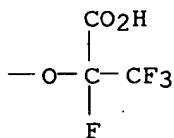


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● 1/2 Fe(II)

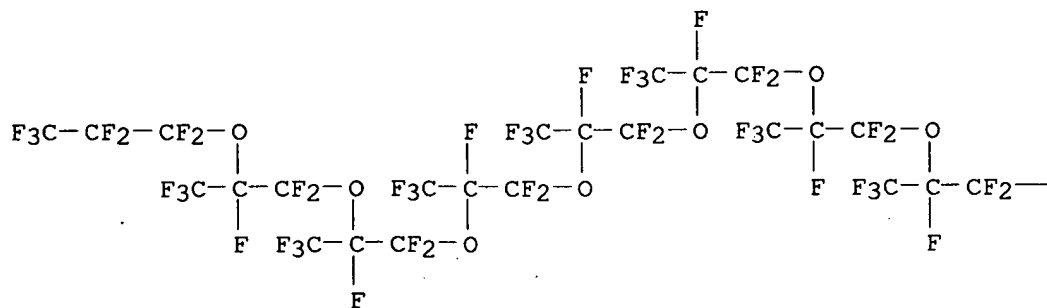
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RN 185319-27-1 HCAPLUS

CN 3,6,9,12,15,18,21,24-Octaoxaheptacosanoic acid,  
 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,26,27,  
 27,27-nonacosafuoro-2,5,8,11,14,17,20,23-octakis(trifluoromethyl)-,  
 chromium(3+) salt (9CI) (CA INDEX NAME)

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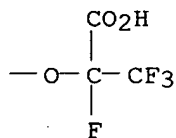


● 1/3 Cr(III)

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27,27-nonacosafuoro-2,5,8,11,14,17,20,23-octakis(trifluoromethyl)-,  
copper(2+) salt (9CI) (CA INDEX NAME)

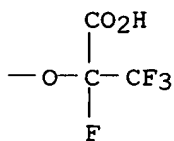
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 & & & & & & | \\
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 | & & & & & & | \\
 \text{F}_3\text{C}-\text{C}-\text{CF}_2-\text{O} & & & & & & \text{F}_3\text{C}-\text{C}-\text{CF}_2-\text{O} \\
 | & & & & & & | \\
 \text{F} & & & & & & \text{F} \\
 & & & & & & | \\
 & & & & & & \text{F}_3\text{C}-\text{C}-\text{CF}_2-\text{O} \\
 & & & & & & | \\
 & & & & & & \text{F}
 \end{array}$$

PAGE 1-B



Page 29 searched 01/23/2007

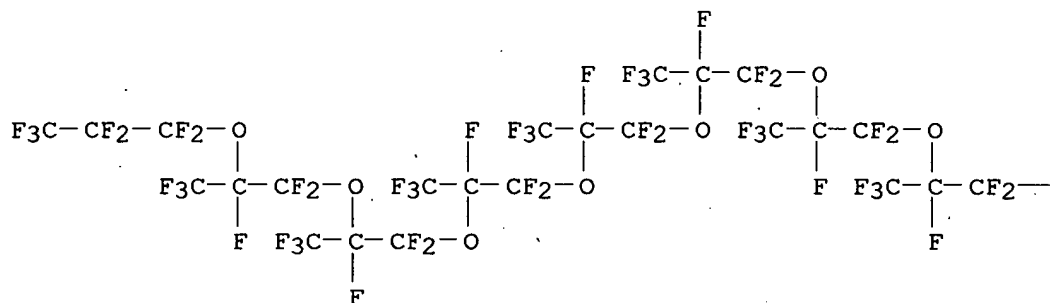
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RN 185319-24-8 HCAPLUS

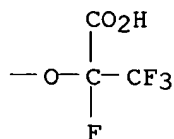
CN 3,6,9,12,15,18,21,24-Octaoxaheptacosanoic acid,  
2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,26,27,  
27,27-nonacosafuoro-2,5,8,11,14,17,20,23-octakis(trifluoromethyl)-, zinc  
salt (9CI) (CA INDEX NAME)

PAGE 1-A



● 1/2 Zn

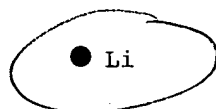
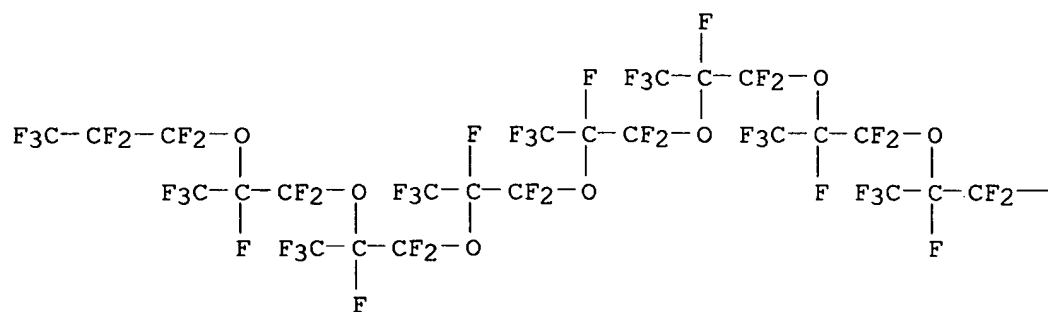
PAGE 1-B



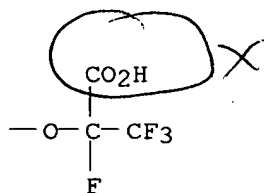
RN 185319-25-9 HCAPLUS

CN 3,6,9,12,15,18,21,24-Octaoxaheptacosanoic acid,

PAGE 1-A



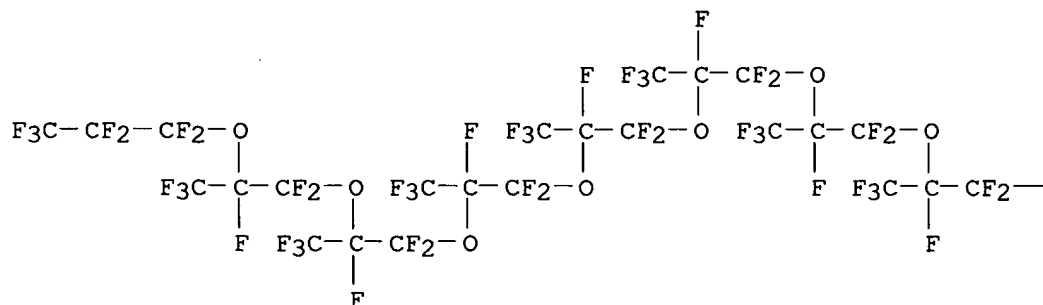
PAGE 1-B



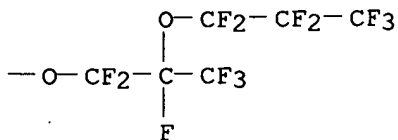
RN 185319-23-7 HCAPLUS

CN 3,6,9,12,15,18,21,24-Octaoxaheptacosanoic acid,  
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 27,27-nonacosafuoro-2,5,8,11,14,17,20,23-octakis(trifluoromethyl)-,  
 aluminum salt (9CI) (CA INDEX NAME)

PAGE 1-A



● 1/3 Al



REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 6 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1996:694618 HCAPLUS

DOCUMENT NUMBER: 126:83575

TITLE: Reaction of perfluoropolyoxapolypropenecarboxylic acids with metal carbonates and acid fluorides with 3-Amino-1,2,4-Triazole

AUTHOR(S): Popova, L. M.; Zchinyaev, Ya. V.

CORPORATE SOURCE: St. Petersburg. Gos. Tekh. Inst., St. Petersburg, Russia

SOURCE: Latvijas Kimijas Zurnals (1995), (5-6), 101-104  
CODEN: LKZUE8; ISSN: 0868-8249

PUBLISHER: Zinatne

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB The reaction of  $\text{CF}_3\text{CF}_2\text{CF}_2\text{O}(\text{CF}(\text{CF}_3)\text{CF}_2\text{O})_n\text{CF}(\text{CF}_3)\text{CO}_2\text{H}$  (HL) ( $n = 1, 7, 10, 13, 19$ ) with metal carbonate gave the corresponding salts with yields of 80-95%.  $\text{RCOCF}(\text{CF}_3)(\text{OCF}_2\text{CF}(\text{CF}_3))_8\text{OCF}_2\text{CF}_2\text{CF}_3$  (RH = 3-amino-1,2,4-triazole) was synthesized with the yield 90% by the reaction of acid fluoride and RH.

IT 185319-21-5P 185319-23-7P 185319-24-8P  
185319-25-9P 185319-26-0P 185319-27-1P  
185319-28-2P 185319-29-3P 185319-30-6P  
185319-31-7P 185319-32-8P 185319-33-9P  
185319-34-0P 185319-35-1P 185319-36-2P  
185319-37-3P 185319-38-4P 185319-39-5P  
185319-40-8P 185319-41-9P 185319-42-0P  
185319-43-1P 185319-44-2P 185319-45-3P  
185319-46-4P 185319-47-5P 185319-48-6P  
185319-49-7P 185319-53-3P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

RN 185319-21-5 HCAPLUS

CN 3,6,9,12,15,18,21,24-Octaoxaheptacosanoic acid,  
2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,26,27,  
27,27-nonacosafuoro-2,5,8,11,14,17,20,23-octakis(trifluoromethyl)-,  
lithium salt (9CI) (CA INDEX NAME)

*Prep of ester salt*

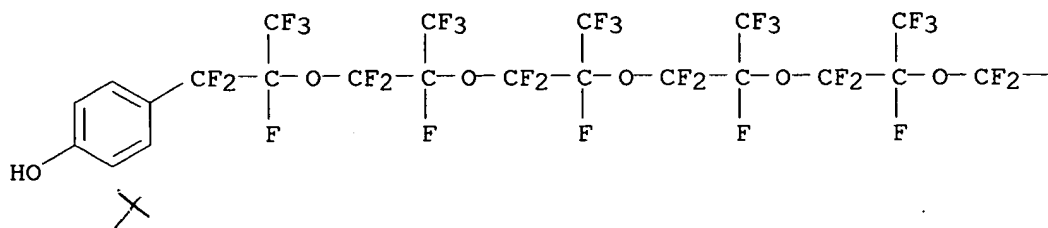
(Preparation); RACT (Reactant or reagent)

(for preparation of perfluoroalkyl- and perfluoroalkylether-substituted aromatic phosphates and phosphonates)

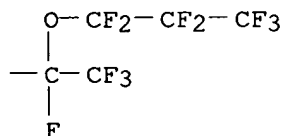
RN 206560-63-6 HCAPLUS

CN Phenol, 4-[1,1,2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,20,21,21,21-pentacosafuoro-2,5,8,11,14,17-hexakis(trifluoromethyl)-3,6,9,12,15,18-hexaoxaheneicos-1-yl]- (9CI) (CA INDEX NAME)

PAGE 1-A



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IT 189301-39-1P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation);

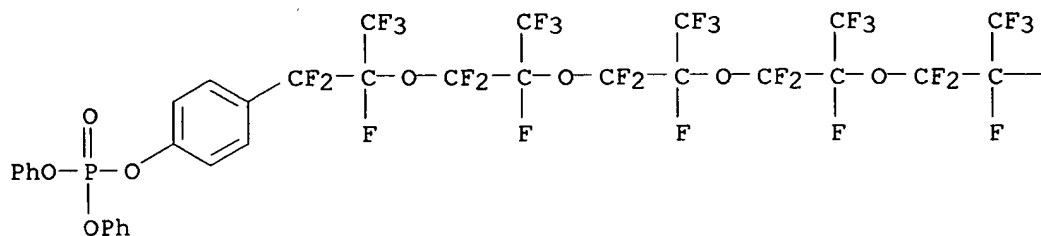
PREP (Preparation); RACT (Reactant or reagent)

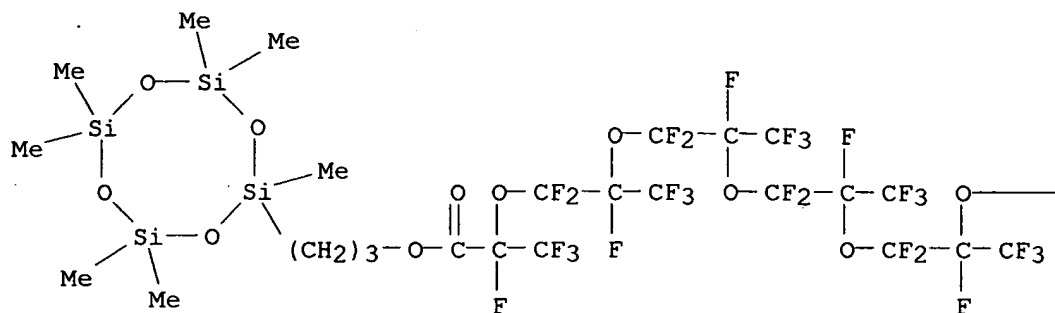
(preparation, hydrolytic stability, pyrolysis and solubility in perfluoropolyalkylether fluids)

RN 189301-39-1 HCAPLUS

CN Phosphoric acid, 4-[1,1,2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,20,21,21,21-pentacosafuoro-2,5,8,11,14,17-hexakis(trifluoromethyl)-3,6,9,12,15,18-hexaoxaheneicos-1-yl]phenyl diphenyl ester (9CI) (CA INDEX NAME)

PAGE 1-A



—CF<sub>2</sub>—CF<sub>2</sub>—CF<sub>3</sub>

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 5 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1998:204089 HCAPLUS

DOCUMENT NUMBER: 128:316468

TITLE: Perfluoroalkyl- and perfluoroalkylether-substituted aromatic phosphates and phosphonates

AUTHOR(S): Paciorek, K. J. L.; Lin, W.-H.; Masuda, S. R.

CORPORATE SOURCE: Technolube Prod. Div., Lubricating Specialties, Corona del Mar, CA, 92625, USA

SOURCE: Journal of Fluorine Chemistry (1998), 88(1), 55-62  
CODEN: JFLCAR; ISSN: 0022-1139

PUBLISHER: Elsevier Science S.A.

DOCUMENT TYPE: Journal

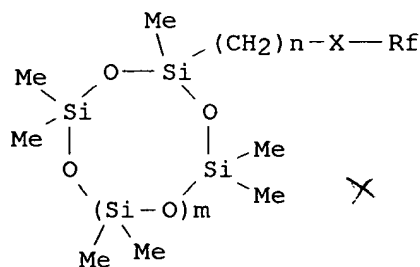
LANGUAGE: English

AB Phosphates and phosphonates, (p-RfC<sub>6</sub>H<sub>4</sub>O)<sub>3</sub>-xP(O)(OPh)<sub>x</sub> and (p-RfC<sub>6</sub>H<sub>4</sub>O)<sub>3</sub>-xP(O)Ph<sub>x</sub>, resp. (Rf = C<sub>2</sub>F<sub>5</sub>, n-C<sub>8</sub>F<sub>17</sub> and C<sub>3</sub>F<sub>7</sub>(OCF(CF<sub>3</sub>)CF<sub>2</sub>)<sub>n</sub> wherein n = 2, 3, 4 and 6) were prepared by reaction of the appropriate phenols with corresponding P halides. The majority of phenols were obtained from p-RfC<sub>6</sub>H<sub>4</sub>Br via p-RfC<sub>6</sub>H<sub>4</sub>B(OCH<sub>3</sub>)<sub>2</sub> intermediates followed by hydrolysis. The presence of RfC<sub>6</sub>H<sub>4</sub>O groups promoted hydrolytic instability and phosphates were more susceptible to hydrolysis than the corresponding phosphonates. An increase in the number of RfC<sub>6</sub>H<sub>4</sub>O groups resulted in lower hydrolytic stability. It required the presence of two p-C<sub>3</sub>F<sub>7</sub>(OCF(CF<sub>3</sub>)CF<sub>2</sub>)<sub>n</sub>C<sub>6</sub>H<sub>4</sub>O substituents for the compds. to be soluble in perfluoropolyalkylether fluids at low temperature; solubility increased with the increase in n.

IT 206560-63-6P

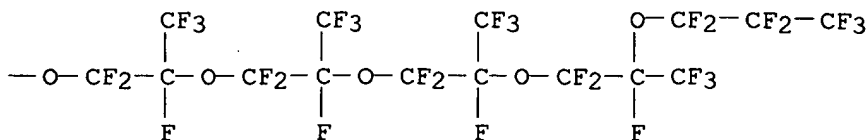
RL: RCT (Reactant); SPN (Synthetic preparation); PREP

US 5892086	A	19990406	US 1998-87185	19980529
CA 2342153	A1	19991209	CA 1999-2342153	19990226
WO 9962916	A1	19991209	WO 1999-US4341	19990226
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
AU 9927955	A	19991220	AU 1999-27955	19990226
EP 1082327	A1	20010314	EP 1999-908551	19990226
R: CH, DE, ES, FR, GB, IT, LI				
JP 2002517402	T	20020618	JP 2000-552127	19990226
PRIORITY APPLN. INFO.:			US 1998-86649	A 19980529
			US 1998-87185	A 19980529
			WO 1999-US4341	W 19990226
OTHER SOURCE(S):			MARPAT 130:282477	
GI				

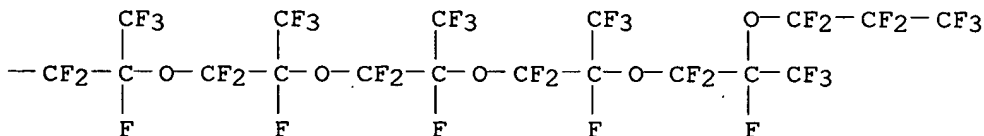
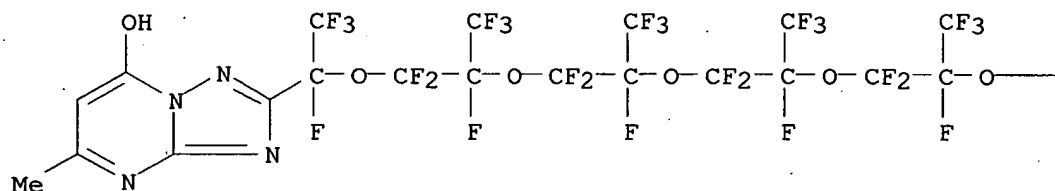


- AB Unstrained perfluorinated ether organo substituted cyclosiloxanes I ( $m = 1-12$ ;  $n = 1-4$ ;  $X =$  divalent radical which may include O, NH, NMe, OC(O), NHC(O), NMeC(O)CH<sub>2</sub>; and RF = perfluorinated ether radical F(CF<sub>3</sub>CFCF<sub>2</sub>O)pCF(CF<sub>3</sub>)-,  $p = 1-10$ ) are prepared Esterification of 22 mmols (3-hydroxypropyl)heptamethylcyclotetrasiloxane and with 21.9 mmols perfluoro-2,5,8-trimethyl-3,6,9-trioxadodecanoyl fluoride in the presence of Et<sub>3</sub>N gave I ( $m = 1$ ,  $n = 3$ ,  $X =$  OC(O), and RF as above where  $p = 3$ ) isolated in 66% yield.
- IT 222639-91-0P  
RL: IMF (Industrial manufacture); PREP (Preparation)  
(perfluorinated ether organo substituted cyclosiloxane preparation)
- RN 222639-91-0 HCAPLUS
- CN 3,6,9,12,15-Pentaoxaoctadecanoic acid, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,17,18,18,18-eicosafluoro-2,5,8,11,14-pentakis(trifluoromethyl)-, 3-(2,4,4,6,6,8,8-heptamethylcyclotetrasiloxan-2-yl)propyl ester (9CI) (CA INDEX NAME)





RN	240801-28-9	HCAPLUS
CN	<chem>[1,2,4]Triazolo[1,5-a]pyrimidin-7-ol, 5-methyl-2-[1,3,3,4,6,6,7,9,9,10,12,12,13,15,15,16,18,18,19,21,21,22,24,24,25,27,27,28,30,30,31,31,32,32,32-pentatriacontafluoro-1,4,7,10,13,16,19,22,25,28-decakis(trifluoromethyl)-2,5,8,11,14,17,20,23,26,29-decaoxadotriacont-1-yl]- (9CI) (CA INDEX NAME)</chem>	



REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 4 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1999:227963 HCAPLUS

DOCUMENT NUMBER: 130:282477

TITLE: Perfluorinated ether organo substituted cyclosiloxanes  
and siloxane (co)polymers prepared from these  
cyclosiloxanes

INVENTOR(S) : Buese, Mark A.; Shaffer, John Scott

PATENT ASSIGNEE(S) : PCR, Inc., USA

SOURCE: U.S., 10 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

**PATENT INFORMATION:**

PATENT NO.

KIND	DATE
1	1950
2	1951
3	1952
4	1953
5	1954
6	1955
7	1956
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98	2047
99	2048
100	2049

DATE \_\_\_\_\_

APPLICATION NO.

DATE \_\_\_\_\_

DOCUMENT NUMBER: 131:199672  
 TITLE: Synthesis and characterization of some new fluorinated pyrimidine derivatives  
 AUTHOR(S): Popova, L. M.; Trishina, A. U.; Vershilov, S. V.; Ginak, A. I.; Maksimov, B. N.  
 CORPORATE SOURCE: Department of Molecular Biotechnology, St. Petersburg State Institute of Technology, St. Petersburg, 198013, Russia  
 SOURCE: Journal of Fluorine Chemistry (1999), 96(1), 51-56  
 CODEN: JFLCAR; ISSN: 0022-1139  
 PUBLISHER: Elsevier Science S.A.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

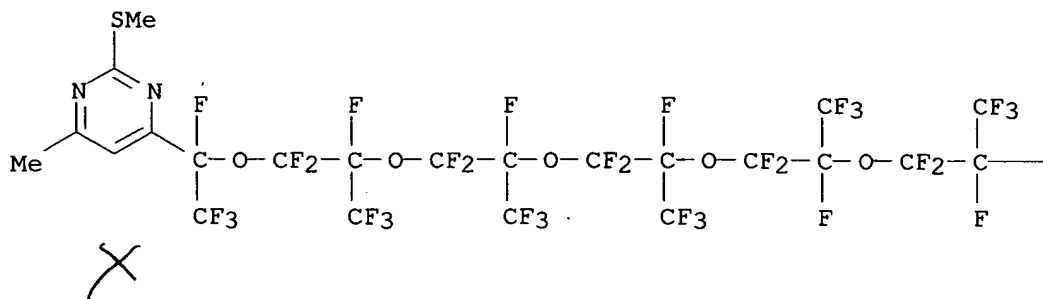
AB 6-Fluorinated 2-methylthio-4-methylpyrimidines were prepared from the appropriate 2-mercapto derivs. and an alkaline solution of Me iodide. The 6-fluorinated 2-hydroxy-4-methylpyrimidines were converted to the 2-chloro derivs. and, finally, to the corresponding n-butyl- and diethylamino derivs. Diazocoupling of the fluorinated pyrimidyl-2-diazonium salts with N,N-diethylaniline, phenol and  $\beta$ -naphthol followed by the diazotization of 2-amino-4-methyl-6-fluorinated pyrimidines lead to the corresponding aza-compds. The reduction of the 2-diazonium salt of 6-perfluorohexylpyrimidine by sodium sulphite in an acidic medium gave the corresponding 2-hydrazinoderivative. This compound rearranges in formic acid to give the s-triazolo[1,5-a]-7-methyl-5-perfluorohexylpyrimidine. In addition, the cyclocondensations of the 3-fluorinated 5-amino-1,2,4-triazoles with acetylacetate in the presence of acetic acid were another route to obtaining the s-triazolo[1,5-a]-5-methyl-7-hydroxypyrimidines with fluorinated groups in the 2 position of the triazole ring. All new fluorinated compds. have been characterized by elemental analyses as well as spectroscopy. Some fluorinated 2-mercapto- and 2-(methylthio)pyrimidine derivs. exhibit high fungicidal activity (no data).

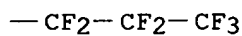
IT 240801-13-2P 240801-28-9P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of fluoropyrimidine derivs.)

RN 240801-13-2 HCAPLUS

CN Pyrimidine, 4-methyl-2-(methylthio)-6-[1,3,3,4,6,6,7,9,9,10,12,12,13,15,15,16,18,18,19,21,21,22,24,24,25,27,27,28,30,30,31,31,32,32,32-pentatriacontafluoro-1,4,7,10,13,16,19,22,25,28-decakis(trifluoromethyl)-2,5,8,11,14,17,20,23,26,29-decaoxadotriacont-1-yl]- (9CI) (CA INDEX NAME)

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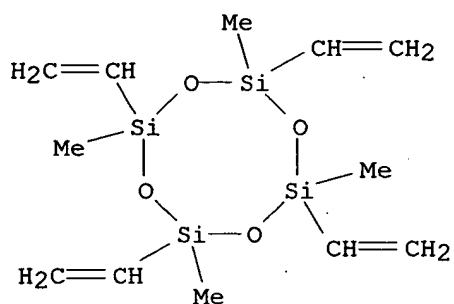




CM 2

CRN 2554-06-5

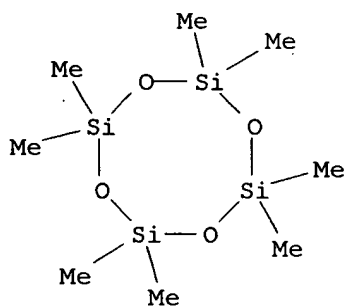
CMF C12 H24 O4 Si4



CM 3

CRN 556-67-2

CMF C8 H24 O4 Si4



REFERENCE COUNT:

17

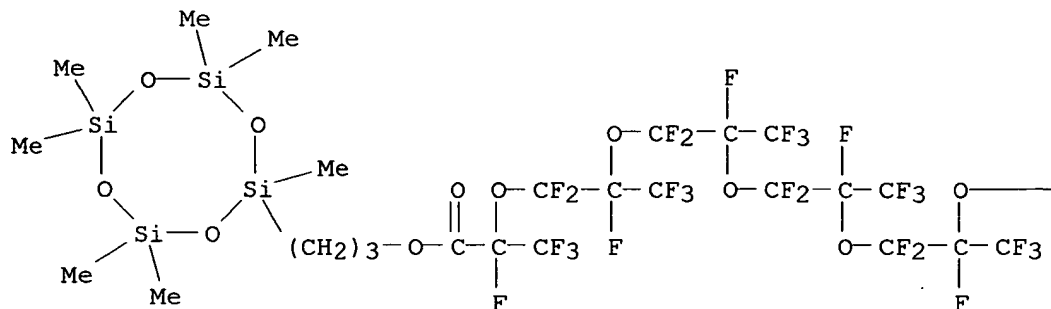
THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 3 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1999:319060 HCAPLUS

16,17,17,18,18,18-eicosafluoro-2,5,8,11,14-pentakis(trifluoromethyl)-,  
3-(2,4,4,6,6,8,8-heptamethylcyclotetrasiloxan-2-yl)propyl ester (9CI) (CA  
INDEX NAME)

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—CF<sub>2</sub>—CF<sub>2</sub>—CF<sub>3</sub>

RN 227000-61-5 HCAPLUS

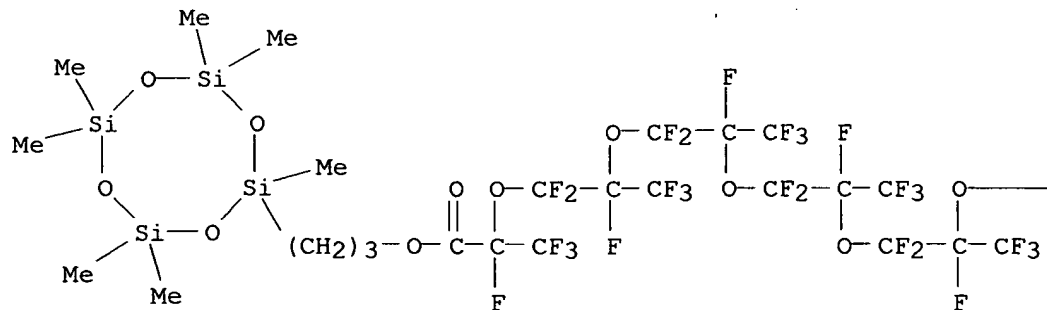
CN 3,6,9,12,15-Pentaoxaoctadecanoic acid, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,  
16,17,17,18,18,18-eicosafluoro-2,5,8,11,14-pentakis(trifluoromethyl)-,  
3-(2,4,4,6,6,8,8-heptamethylcyclotetrasiloxan-2-yl)propyl ester, polymer  
with octamethylcyclotetrasiloxane and 2,4,6,8-tetraethenyl-2,4,6,8-  
tetramethylcyclotetrasiloxane (9CI) (CA INDEX NAME)

CM 1

CRN 222639-91-0

CMF C28 H27 F35 O11 Si4

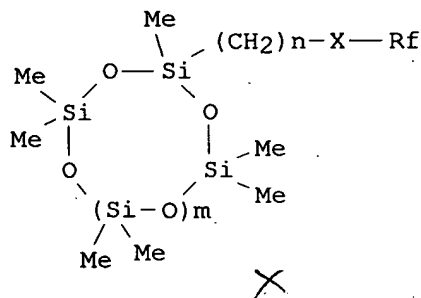
PAGE 1-A



DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 2  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5914420	A	19990622	US 1998-86649	19980529
CA 2342153	A1	19991209	CA 1999-2342153	19990226
WO 9962916	A1	19991209	WO 1999-US4341	19990226
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
AU 9927955	A	19991220	AU 1999-27955	19990226
EP 1082327	A1	20010314	EP 1999-908551	19990226
R: CH, DE, ES, FR, GB, IT, LI				
JP 2002517402	T	20020618	JP 2000-552127	19990226
PRIORITY APPLN. INFO.:			US 1998-86649	A 19980529
			US 1998-87185	A 19980529
			WO 1999-US4341	W 19990226

GI



AB The title cyclosiloxanes are compds. I, wherein  $m = 1-12$ ,  $n = 1-4$ ,  $X$  is a divalent radical which may include O, NH,  $N(CH_3)$ ,  $OC(O)$ ,  $NHC(O)$ ,  $N(CH_3)C(O)CH_2$ , and  $RF$  is a perfluorinated straight chain or branched chain monovalent alkyl radical of 1-25 C's, or  $RF$  is  $F[CF(CF_3)CF_2O]_pCF_2CF_3-$ ,  $p = 1-10$ . Thus, (3-hydroxypropyl)heptamethylcyclotetrasiloxane reacted with perfluoro-2,5,8-trimethyl-3,6,9-trioxadodecanoyl fluoride in the presence of triethylamine to prepare [3-(perfluoro-2,5,8-trimethyl-3,6,9-trioxadodecanoyl)oxypropyl]heptamethylcyclotetrasiloxane.

IT 222639-91-0P 227000-61-5P

RL: IMF (Industrial manufacture); PREP (Preparation)  
 (manufacture of perfluorinated organo substituted cyclosiloxanes and polymers therefrom)

RN 222639-91-0 HCAPLUS

CN 3,6,9,12,15-Pentaoxaoctadecanoic acid, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,

US 2005272948	A1	20051208	US 2005-144646	20050606
JP 2006022079	A	20060126	JP 2004-240524	20040820
EP 1604968	A1	20051214	EP 2005-76307	20050606
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, BA, HR, IS, YU				
PRIORITY APPLN. INFO.:			JP 2004-168082	A 20040607
			JP 2004-240524	A 20040820
OTHER SOURCE(S):		MARPAT 144:22644		
AB	<p>Fluorine-containing acetylenic alc. esters RCO<sub>2</sub>CH<sub>2</sub>QC(OH) (R<sub>1</sub>)C.tplbond.C (un)branched C3-100 perfluoroalkyl which may have an ether bond; Q = divalent C1-6 hydrocarbyl; R<sub>1</sub> = C1-4 alkyl; e.g., F<sub>3</sub>CCF<sub>2</sub>O(CFCF<sub>3</sub>CF<sub>2</sub>O)4CF(CF<sub>3</sub>)CO<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>C(CH<sub>3</sub>)(OH)C.tplbond.CH] are prepared the esterification of acyl halides RCOX [X = halogen; e.g., F<sub>3</sub>CCF<sub>2</sub>O(CFCF<sub>3</sub>CF<sub>2</sub>O)4CF(CF<sub>3</sub>)COF] with a propargylic diol HOCH<sub>2</sub>QC(OH) (R<sub>1</sub>)C.tplbond.CH [e.g., HOCH<sub>2</sub>CH<sub>2</sub>C(CH<sub>3</sub>)(OH)C.tplbond.CH].</p>			
IT	<p>870646-93-8P            RL: SPN (Synthetic preparation); PREP (Preparation)            (acetylenic alc. esters having a fluoroalkyl group and methods for preparing them)</p>			
RN	870646-93-8 HCAPLUS			
CN	<p>3,6,9,12,15-Pentaoxaoctadecanoic acid, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,17,17,18,18,18-eicosafluoro-2,5,8,11,14-pentakis(trifluoromethyl)-, 3-hydroxy-3-methyl-4-pentynyl ester (9CI) (CA INDEX NAME)</p>			

$$\begin{array}{ccccccc} & \text{Me} & & & & \text{F} & \\ & | & & & & | & \\ \text{HC}\equiv\text{C}-\text{C}-\text{CH}_2-\text{CH}_2-\text{O}-\overset{\text{O}}{\parallel}\text{C}-\text{C}-\text{CF}_3 & & & \text{O}-\text{CF}_2- & \text{C}-\text{CF}_3 & \text{O}-\text{CF}_2- & \text{C}-\text{CF}_3 \\ & | & & & | & & | \\ & \text{OH} & & & \text{F} & & \text{O}-\text{CF}_2- \\ & & & & & & | \\ & & & & & & \text{F} \end{array}$$
$$-\text{CF}_2-\text{CF}_3$$

Page 17 searched 01/23/2007

10813525 PTFE

PLEASE SEE "HELP USAGETERMS" FOR DETAILS.  
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FILE COVERS 1907 - 23 Jan 2007 VOL 146 ISS 5  
FILE LAST UPDATED: 22 Jan 2007 (20070122/ED)

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L2 8 S L1 SSS SAM  
L3 164 S L1 SSS FULL

FILE 'HCAPLUS' ENTERED AT 08:25:47 ON 23 JAN 2007

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99 L3  
4349283 PREP/RL  
L4 41 L3/PREP  
(L3 (L) PREP/RL)

=> d 14 1-41 ibib abs hitstr

L4 ANSWER 1-OF 41 HCAPLUS. COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:1293659 HCAPLUS

DOCUMENT NUMBER: 144:22644

TITLE: Acetylenic alcohol esters having a fluoroalkyl group and methods for preparing them

INVENTOR(S): Koike, Noriyuki; Sakano, Yasunori

PATENT ASSIGNEE(S): Shin-Etsu Chemical Co., Ltd., Japan

SOURCE: U.S. Pat. Appl. Publ., 12 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

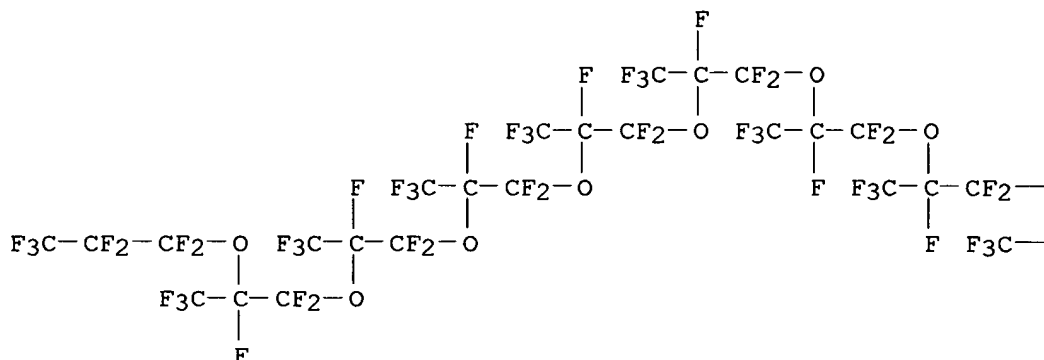
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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10813525 PTFE

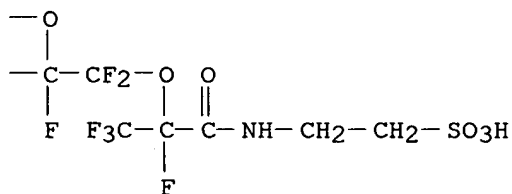
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31,32,32,33,33,33-dotriacontafluoro-4-oxo-5,8,11,14,17,20,23,26,29-  
nonakis(trifluoromethyl)- (9CI) (CA INDEX NAME)  
MF C32 H6 F59 N O13 S  
CI COM  
SR CA

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\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

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TOTAL

ENTRY

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FULL ESTIMATED COST

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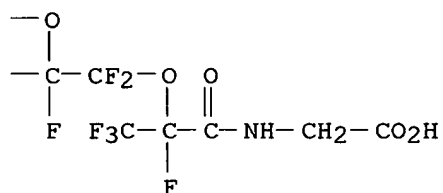
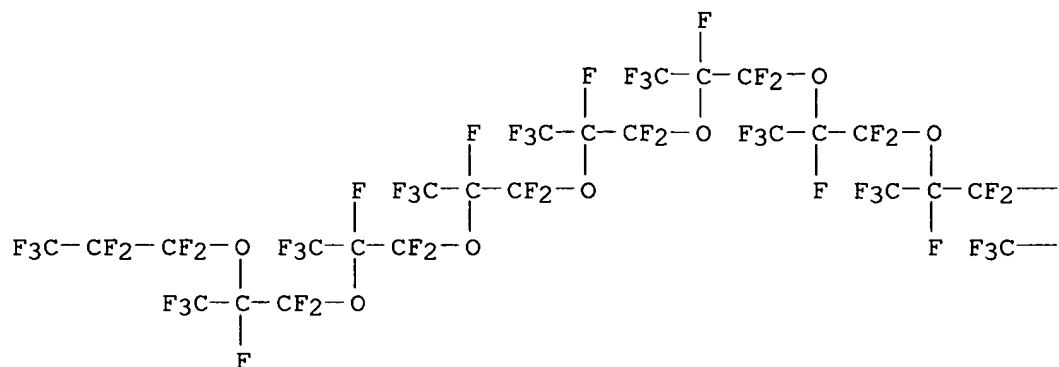
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USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.





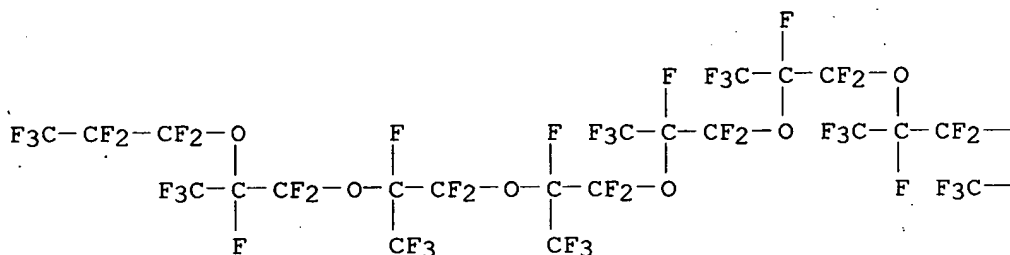


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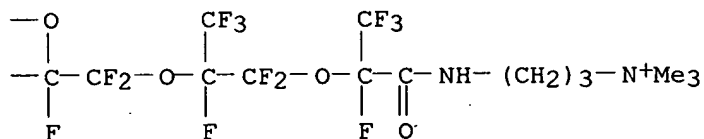
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 RN 741234-17-3 REGISTRY  
 ED Entered STN: 08 Sep 2004  
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 N-(2-hydroxyethyl)-N,N-dimethyl-21-oxo-5,8,11,14,17-  
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 MF C27 H18 F39 N2 O8  
 CI COM  
 SR CA

ITERATION INCOMPLETE  
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 27,27,29-dotriacontafluoro-N,N,N-trimethyl-30-oxo-5,8,11,14,17,20,23,26,29-  
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 MF C36 H16 F59 N2 O10  
 CI COM  
 SR CA

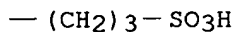
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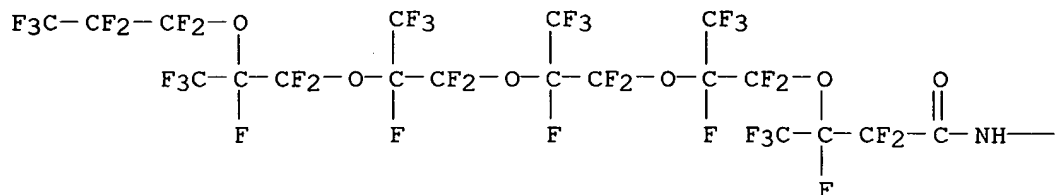
L3 ANSWER 7 OF 164 REGISTRY COPYRIGHT 2007 ACS on STN  
 RN 762181-48-6 REGISTRY  
 ED Entered STN: 13 Oct 2004  
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 MF C32 H4 F59 N O12  
 CI COM  
 SR CA



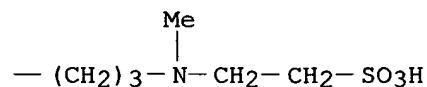
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L3 ANSWER 5 OF 164 REGISTRY COPYRIGHT 2007 ACS on STN  
 RN 787507-13-5 REGISTRY  
 ED Entered STN: 23 Nov 2004  
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 9,9,10,12,12,13,15,15,16,18,18,19,21,21,22,24,24,25,25,26,26,26-  
 docosafluoro-3-methyl-8-oxo-10,13,16,19,22-pentakis(trifluoromethyl)-  
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 CI COM  
 SR CA

PAGE 1-A



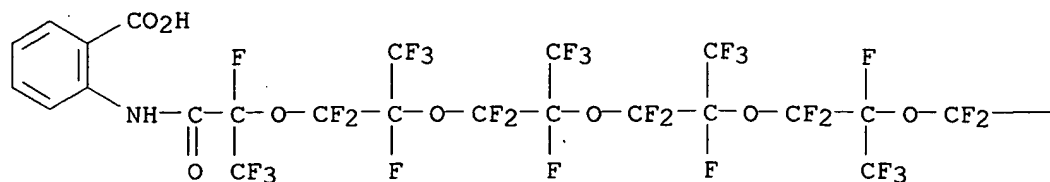
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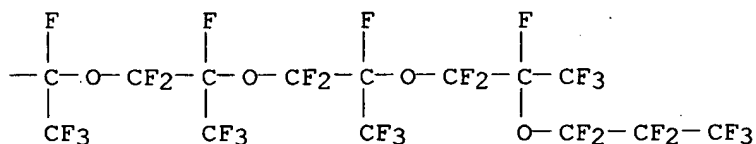
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L3 ANSWER 6 OF 164 REGISTRY COPYRIGHT 2007 ACS on STN  
 RN 783250-26-0 REGISTRY  
 ED Entered STN: 17 Nov 2004

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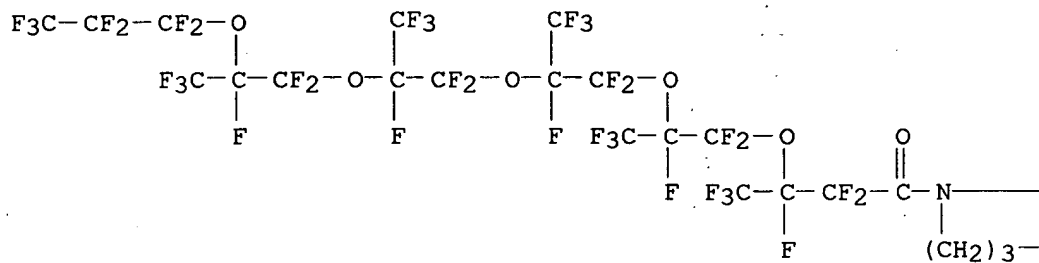
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\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

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 RN 791020-92-3 REGISTRY  
 ED Entered STN: 30 Nov 2004  
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 CN 4,7,10,13,16-Pentaoxa-20-azatricosane-23-sulfonic acid,  
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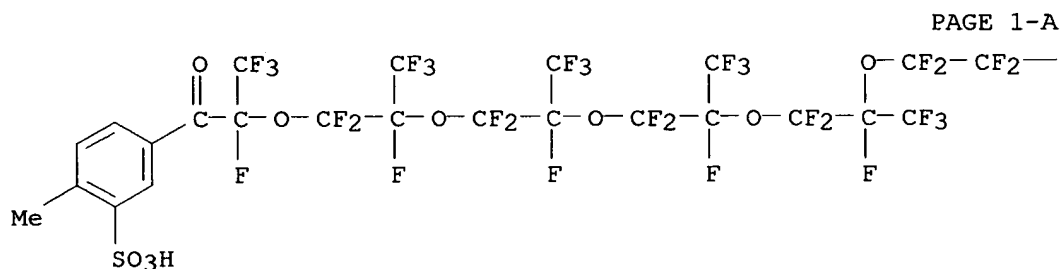
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1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 2 OF 164 REGISTRY COPYRIGHT 2007 ACS on STN  
RN 794448-86-5 REGISTRY  
ED Entered STN: 08 Dec 2004  
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MF C25 H7 F35 O9 S  
CI COM  
SR CA

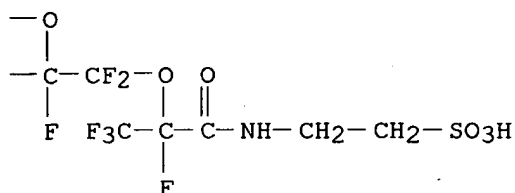


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ED Entered STN: 06 Dec 2004  
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MF C37 H6 F59 N O12  
CI COM  
SR CA



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

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L3 ANSWER 1 OF 164 REGISTRY COPYRIGHT 2007 ACS on STN

RN 870646-93-8 REGISTRY

ED Entered STN: 23 Dec 2005

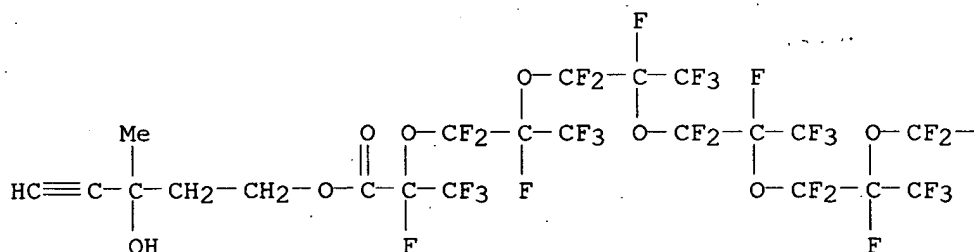
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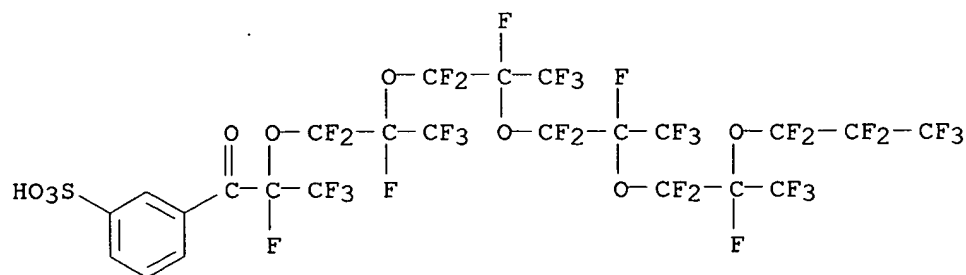
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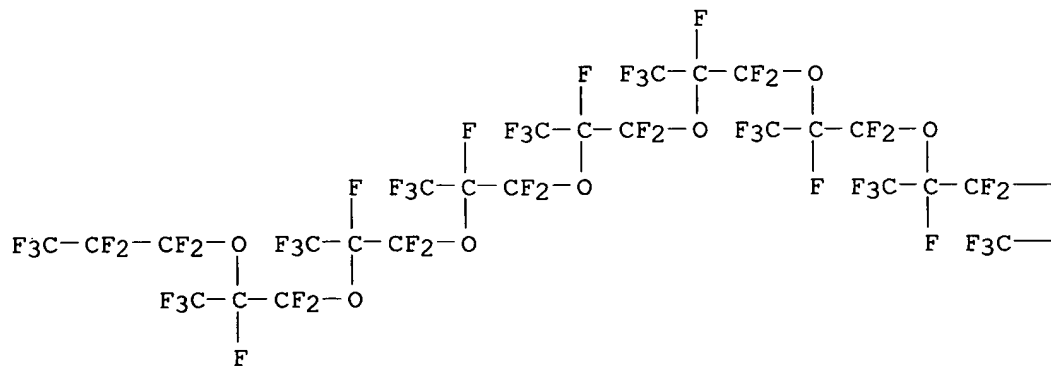
L3 ANSWER 9 OF 164 REGISTRY COPYRIGHT 2007 ACS on STN  
 RN 736887-11-9 REGISTRY  
 ED Entered STN: 01 Sep 2004  
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 CI COM  
 SR CA



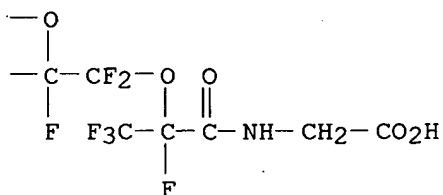
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 RN 736873-31-7 REGISTRY  
 ED Entered STN: 01 Sep 2004  
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 CI COM  
 SR CA

PAGE 1-A



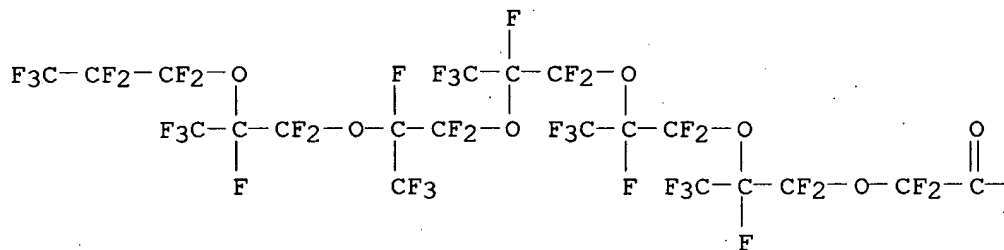




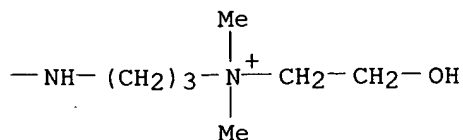
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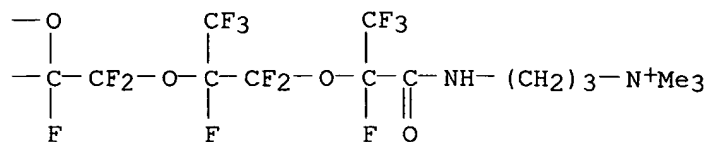
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 RN 741234-17-3 REGISTRY  
 ED Entered STN: 08 Sep 2004  
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 N-(2-hydroxyethyl)-N,N-dimethyl-21-oxo-5,8,11,14,17-  
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 MF C27 H18 F39 N2 O8  
 CI COM  
 SR CA

PAGE 1-A

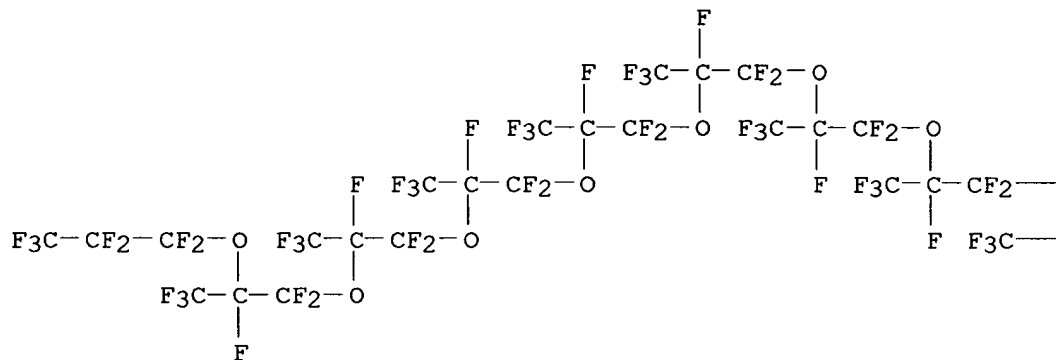


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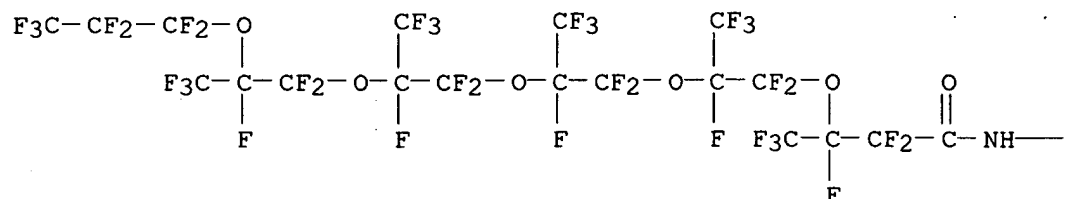




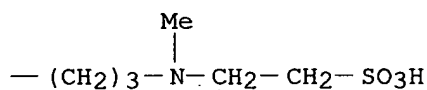
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 ED Entered STN: 13 Oct 2004  
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 MF C32 H4 F59 N O12  
 CI COM  
 SR CA



PAGE 1-A



PAGE 1-B



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 ANSWER 6 OF 164 REGISTRY COPYRIGHT 2007 ACS on STN

RN 783250-26-0 REGISTRY

ED Entered STN: 17 Nov 2004

ITERATION INCOMPLETE

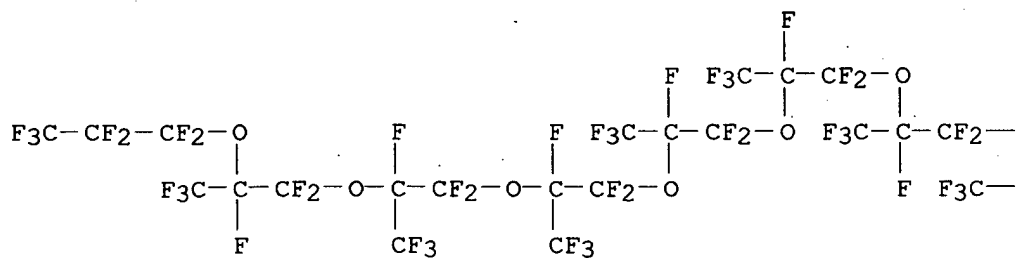
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 27,27,29-dotriacontafluoro-N,N,N-trimethyl-30-oxo-5,8,11,14,17,20,23,26,29-  
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MF C36 H16 F59 N2 O10

CI COM

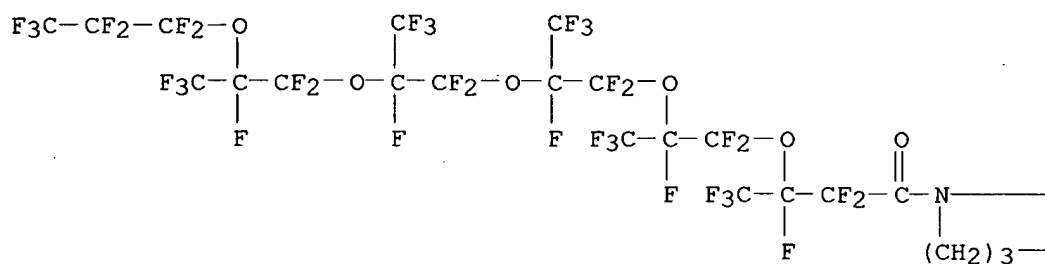
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L3 ANSWER 4 OF 164 REGISTRY COPYRIGHT 2007 ACS on STN  
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 ED Entered STN: 30 Nov 2004  
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 CN 4,7,10,13,16-Pentaoxa-20-azatricosane-23-sulfonic acid,  
 20-[3-(dimethylamino)propyl]-1,1,1,2,2,3,3,5,6,6,8,9,9,11,12,12,14,15,15,1  
 7,18,18-docosafluoro-19-oxo-5,8,11,14,17-pentakis(trifluoromethyl)- (9CI)  
 (CA INDEX NAME)  
 MF C27 H19 F37 N2 O9 S  
 CI COM  
 SR CA

PAGE 1-A



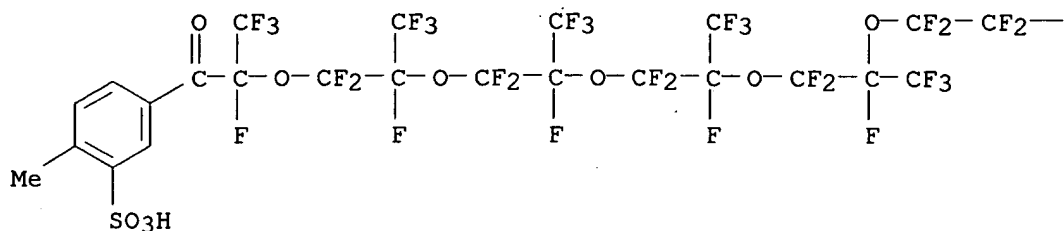
PAGE 1-B

— (CH<sub>2</sub>)<sub>3</sub>—SO<sub>3</sub>H———NMe<sub>2</sub>

\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 ANSWER 5 OF 164 REGISTRY COPYRIGHT 2007 ACS on STN  
 RN 787507-13-5 REGISTRY  
 ED Entered STN: 23 Nov 2004  
 ITERATION INCOMPLETE  
 CN 11,14,17,20,23-Pentaoxa-3,7-diazaheacosane-1-sulfonic acid,  
 9,9,10,12,12,13,15,15,16,18,18,19,21,21,22,24,24,25,25,26,26,26-  
 docosafluoro-3-methyl-8-oxo-10,13,16,19,22-pentakis(trifluoromethyl)-  
 (9CI) (CA INDEX NAME)  
 MF C25 H15 F37 N2 O9 S  
 CI COM  
 SR CA

PAGE 1-A



PAGE 1-B

-CF<sub>3</sub>

\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 ANSWER 3 OF 164 REGISTRY COPYRIGHT 2007 ACS on STN

RN 793608-69-2 REGISTRY

ED Entered STN: 06 Dec 2004

ITERATION INCOMPLETE

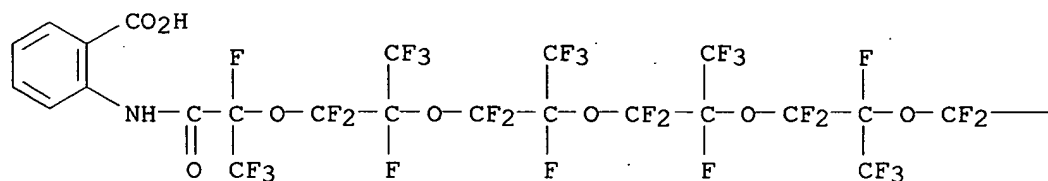
CN Benzoic acid, 2-[[2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,28,28,29,29,30,30,30-dotriacontafluoro-1-oxo-2,5,8,11,14,17,20,23,26-nonakis(trifluoromethyl)-3,6,9,12,15,18,21,24,27-nonaotriacont-1-yl]amino]- (9CI) (CA INDEX NAME)

MF C37 H6 F59 N O12

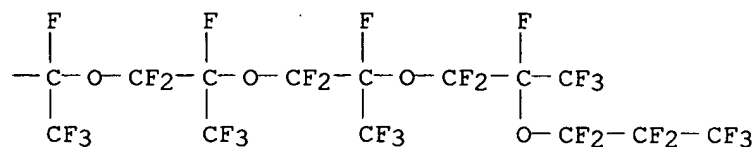
CI COM

SR CA

PAGE 1-A



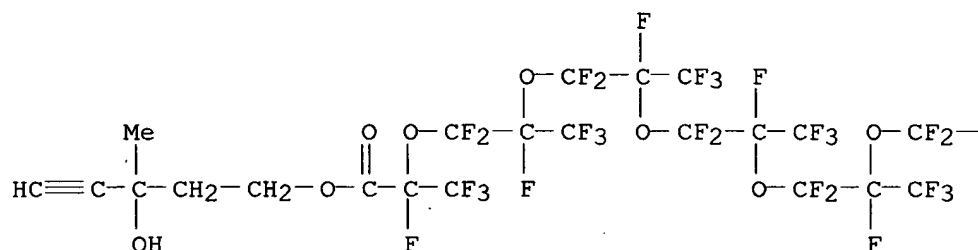
PAGE 1-B



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 ANSWER 1 OF 164 REGISTRY COPYRIGHT 2007 ACS on STN  
 RN 870646-93-8 REGISTRY  
 ED Entered STN: 23 Dec 2005  
 ITERATION INCOMPLETE  
 CN 3,6,9,12,15-Pentaoxaoctadecanoic acid, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,  
 16,17,17,18,18-eicosafuoro-2,5,8,11,14-pentakis(trifluoromethyl)-,  
 3-hydroxy-3-methyl-4-pentynyl ester (9CI) (CA INDEX NAME)  
 MF C24 H9 F35 O8  
 SR CA  
 LC STN Files: CA, CAPLUS, USPATFULL

PAGE 1-A



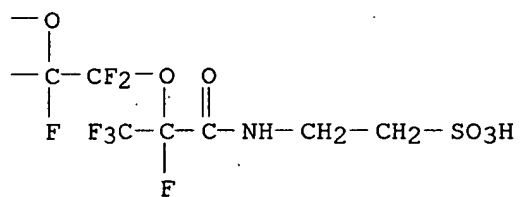
PAGE 1-B

—CF<sub>2</sub>—CF<sub>3</sub>

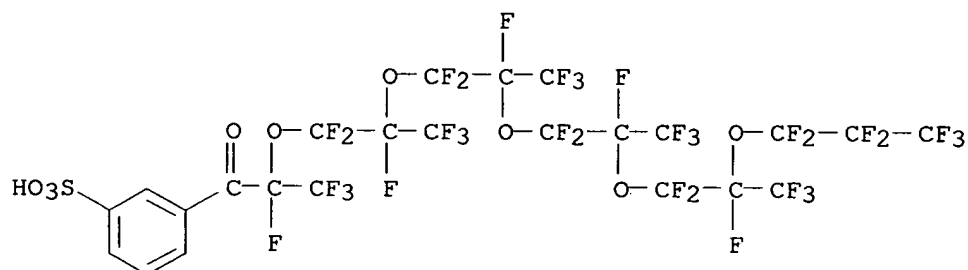
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

1 REFERENCES IN FILE CA (1907 TO DATE)  
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 2 OF 164 REGISTRY COPYRIGHT 2007 ACS on STN  
 RN 794448-86-5 REGISTRY  
 ED Entered STN: 08 Dec 2004  
 ITERATION INCOMPLETE  
 CN Benzenesulfonic acid, 5-[2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,17,18,18,  
 18-eicosafuoro-1-oxo-2,5,8,11,14-pentakis(trifluoromethyl)-3,6,9,12,15-  
 pentaooxaoctadec-1-yl]-2-methyl- (9CI) (CA INDEX NAME)  
 MF C25 H7 F35 O9 S  
 CI COM  
 SR CA



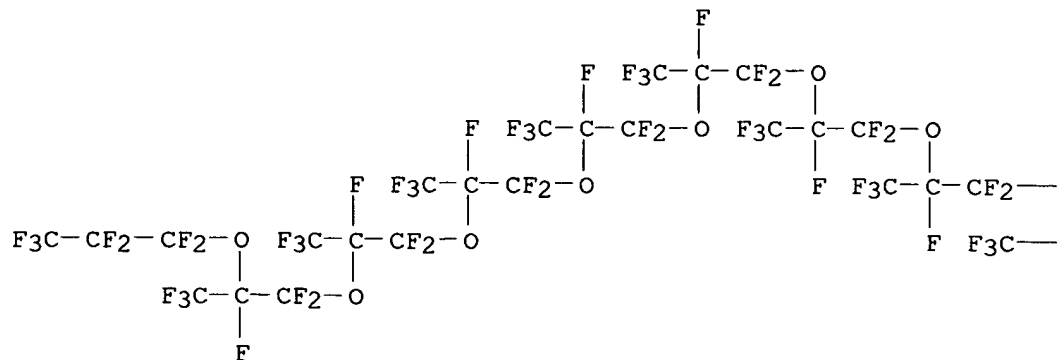
L3 ANSWER 9 OF 164 REGISTRY COPYRIGHT. 2007 ACS on STN  
 RN 736887-11-9 REGISTRY  
 ED Entered STN: 01 Sep 2004  
 ITERATION INCOMPLETE  
 CN Benzenesulfonic acid, 3-[2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,17,18,18,18-eicosafuoro-1-oxo-2,5,8,11,14-pentakis(trifluoromethyl)-3,6,9,12,15-pentaoxaoctadec-1-yl]- (9CI) (CA INDEX NAME)  
 MF C24 H5 F35 O9 S  
 CI COM  
 SR CA



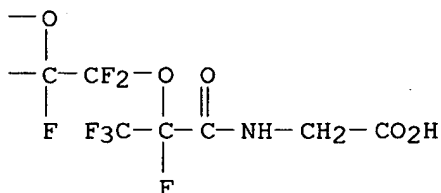
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 ANSWER 10 OF 164 REGISTRY COPYRIGHT 2007 ACS on STN  
 RN 736873-31-7 REGISTRY  
 ED Entered STN: 01 Sep 2004  
 ITERATION INCOMPLETE  
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 MF C32 H6 F59 N O13 S  
 CI COM  
 SR CA

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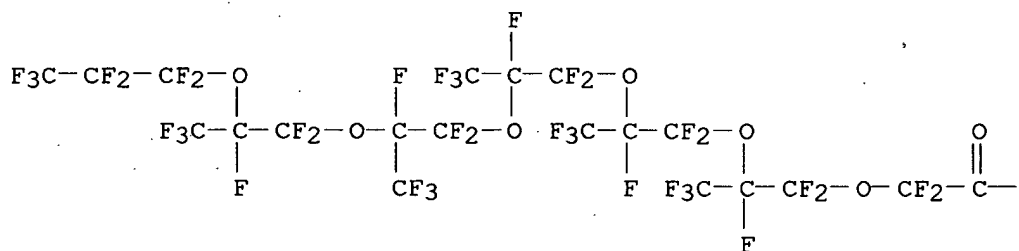




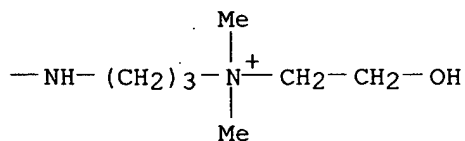
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

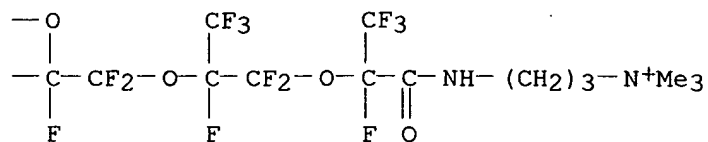
L3 ANSWER 8 OF 164 REGISTRY COPYRIGHT 2007 ACS on STN  
 RN 741234-17-3 REGISTRY  
 ED Entered STN: 08 Sep 2004  
 ITERATION INCOMPLETE  
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 1,1,1,2,2,3,3,5,6,6,8,9,9,11,12,12,14,15,15,17,18,18,20,20-tetracosafuoro-  
 N-(2-hydroxyethyl)-N,N-dimethyl-21-oxo-5,8,11,14,17-  
 pentakis(trifluoromethyl)- (9CI) (CA INDEX NAME)  
 MF C27 H18 F39 N2 O8  
 CI COM  
 SR CA

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L3 ANSWER 7 OF 164 REGISTRY COPYRIGHT 2007 ACS on STN

RN 762181-48-6 REGISTRY

ED Entered STN: 13 Oct 2004

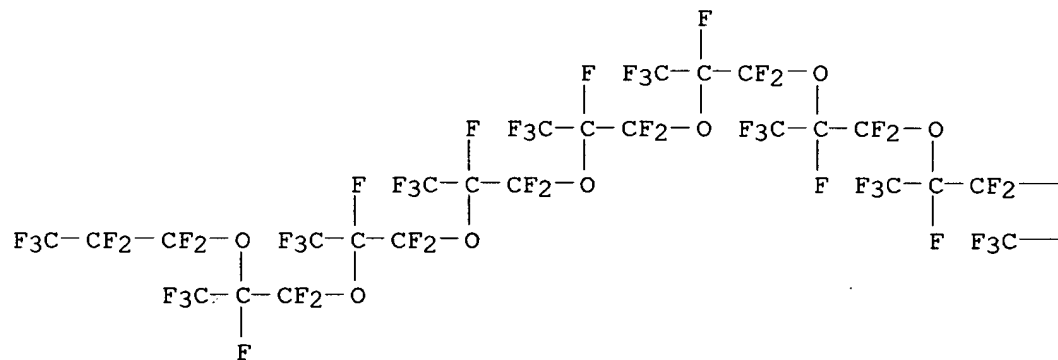
ITERATION INCOMPLETE

CN 6,9,12,15,18,21,24,27,30-Nonaoxa-3-azatritriacontanoic acid,  
5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,28,28,29,31,  
31,32,32,33,33,33-dotriacontafluoro-4-oxo-5,8,11,14,17,20,23,26,29-  
nonakis(trifluoromethyl)- (9CI) (CA INDEX NAME)

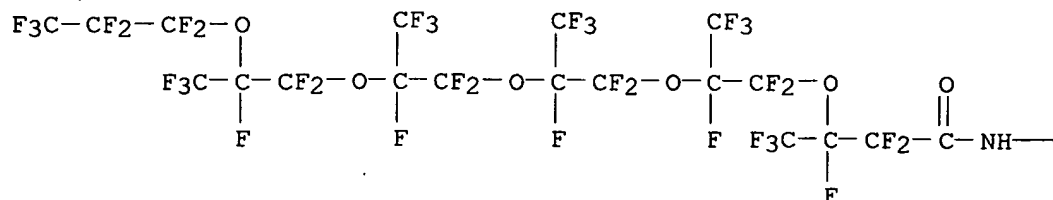
MF C32 H4 F59 N O12

CI COM

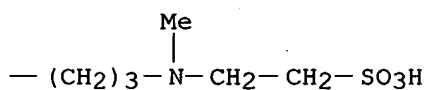
SR CA



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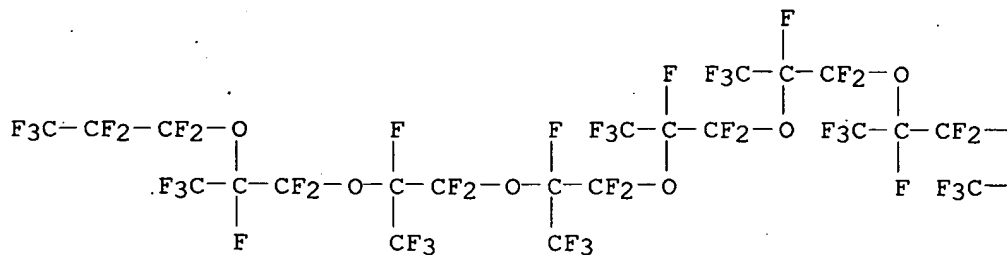
PAGE 1-B



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

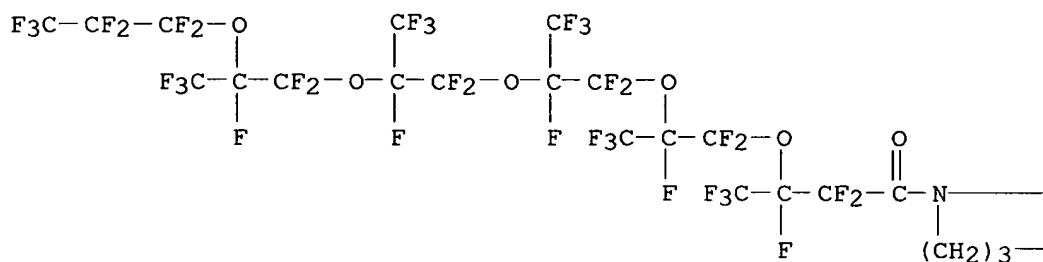
L3 ANSWER 6 OF 164 REGISTRY COPYRIGHT 2007 ACS on STN  
 RN 783250-26-0 REGISTRY  
 ED Entered STN: 17 Nov 2004  
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 1,1,1,2,2,3,3,5,6,6,8,9,9,11,12,12,14,15,15,17,18,18,20,21,21,23,24,24,26,  
 27,27,29-dotriacontafluoro-N,N,N-trimethyl-30-oxo-5,8,11,14,17,20,23,26,29-  
 nonakis(trifluoromethyl)- (9CI) (CA INDEX NAME)  
 MF C36 H16 F59 N2 O10  
 CI COM  
 SR CA

PAGE 1-A



L3 ANSWER 4 OF 164 REGISTRY COPYRIGHT 2007 ACS on STN  
 RN 791020-92-3 REGISTRY  
 ED Entered STN: 30 Nov 2004  
 ITERATION INCOMPLETE  
 CN 4,7,10,13,16-Pentaoxa-20-azatricosane-23-sulfonic acid,  
 20-[3-(dimethylamino)propyl]-1,1,1,2,2,3,3,5,6,6,8,9,9,11,12,12,14,15,15,1  
 7,18,18-docosafluoro-19-oxo-5,8,11,14,17-pentakis(trifluoromethyl)- (9CI)  
 (CA INDEX NAME)  
 MF C27 H19 F37 N2 O9 S  
 CI COM  
 SR CA

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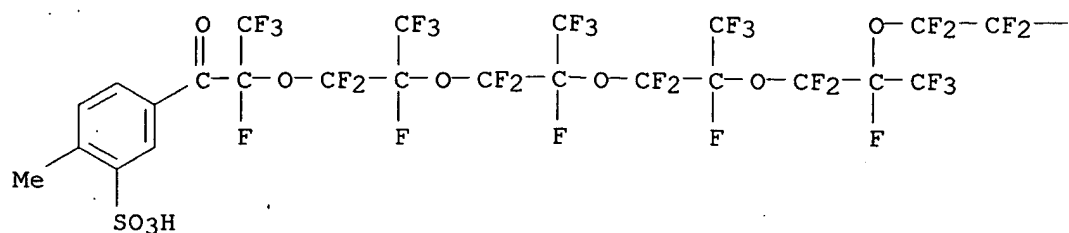
PAGE 1-B

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\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 ANSWER 5 OF 164 REGISTRY COPYRIGHT 2007 ACS on STN  
 RN 787507-13-5 REGISTRY  
 ED Entered STN: 23 Nov 2004  
 ITERATION INCOMPLETE  
 CN 11,14,17,20,23-Pentaoxa-3,7-diazaheacosane-1-sulfonic acid,  
 9,9,10,12,12,13,15,15,16,18,18,19,21,21,22,24,24,25,25,26,26,26-  
 docosafluoro-3-methyl-8-oxo-10,13,16,19,22-pentakis(trifluoromethyl)-  
 (9CI) (CA INDEX NAME)  
 MF C25 H15 F37 N2 O9 S  
 CI COM  
 SR CA

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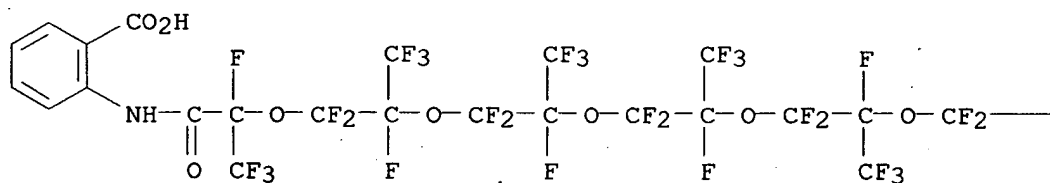
PAGE 1-B

-CF<sub>3</sub>

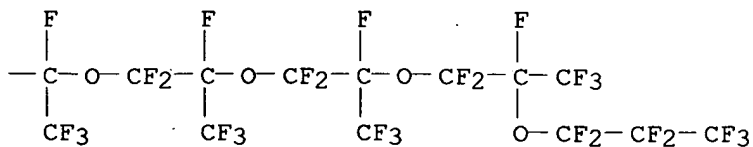
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 ANSWER 3 OF 164 REGISTRY COPYRIGHT 2007 ACS on STN  
 RN 793608-69-2 REGISTRY  
 ED Entered STN: 06 Dec 2004  
 ITERATION INCOMPLETE  
 CN Benzoic acid, 2-[[2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,28,28,29,29,30,30,30-dotriacontafluoro-1-oxo-2,5,8,11,14,17,20,23,26-nonakis(trifluoromethyl)-3,6,9,12,15,18,21,24,27-nonaoxatriacont-1-yl]amino]- (9CI) (CA INDEX NAME)  
 MF C37 H6 F59 N O12  
 CI COM  
 SR CA

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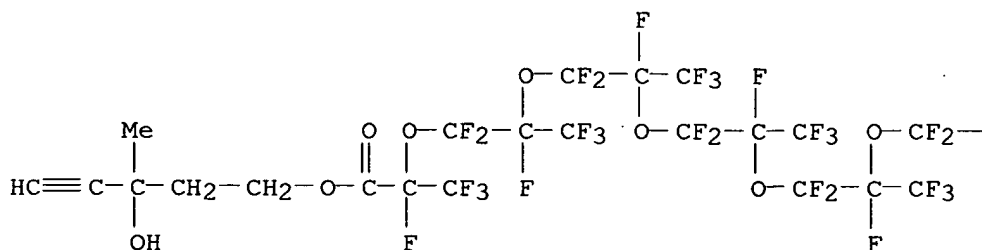
PAGE 1-B



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 ANSWER 1 OF 164 REGISTRY COPYRIGHT 2007 ACS on STN  
 RN 870646-93-8 REGISTRY  
 ED Entered STN: 23 Dec 2005  
 ITERATION INCOMPLETE  
 CN 3,6,9,12,15-Pentaoxaoctadecanoic acid, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,  
 16,17,17,18,18-eicosafuoro-2,5,8,11,14-pentakis(trifluoromethyl)-,  
 3-hydroxy-3-methyl-4-pentynyl ester (9CI) (CA INDEX NAME)  
 MF C24 H9 F35 O8  
 SR CA  
 LC STN Files: CA, CAPLUS, USPATFULL

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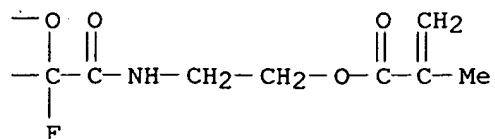
PAGE 1-B

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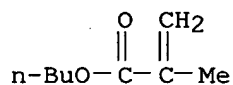
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

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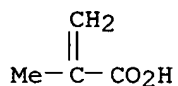
L3 ANSWER 2 OF 164 REGISTRY COPYRIGHT 2007 ACS on STN  
 RN 794448-86-5 REGISTRY  
 ED Entered STN: 08 Dec 2004  
 ITERATION INCOMPLETE  
 CN Benzenesulfonic acid, 5-[2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,17,18,18,  
 18-eicosafuoro-1-oxo-2,5,8,11,14-pentakis(trifluoromethyl)-3,6,9,12,15-  
 pentaaxaoctadec-1-yl]-2-methyl- (9CI) (CA INDEX NAME)  
 MF C25 H7 F35 O9 S  
 CI COM  
 SR CA



CM 2



CM 3



ALL ANSWERS HAVE BEEN SCANNED

=&gt; s ll sss full

FULL SEARCH INITIATED 08:23:10 FILE 'REGISTRY'

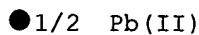
FULL SCREEN SEARCH COMPLETED - 980 TO ITERATE

94.3% PROCESSED	924 ITERATIONS	( 136 INCOMPLETE)	136 ANSWERS
97.7% PROCESSED	957 ITERATIONS	( 150 INCOMPLETE)	150 ANSWERS
100.0% PROCESSED	980 ITERATIONS	( 164 INCOMPLETE)	164 ANSWERS

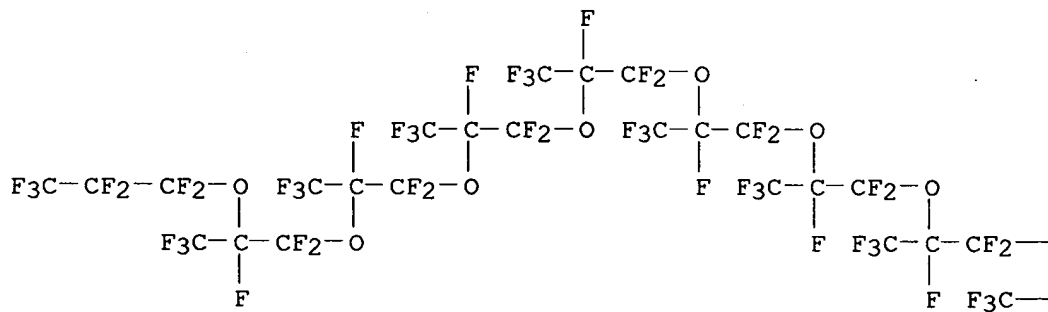
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L3

164 SEA SSS FUL L1

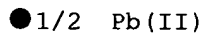


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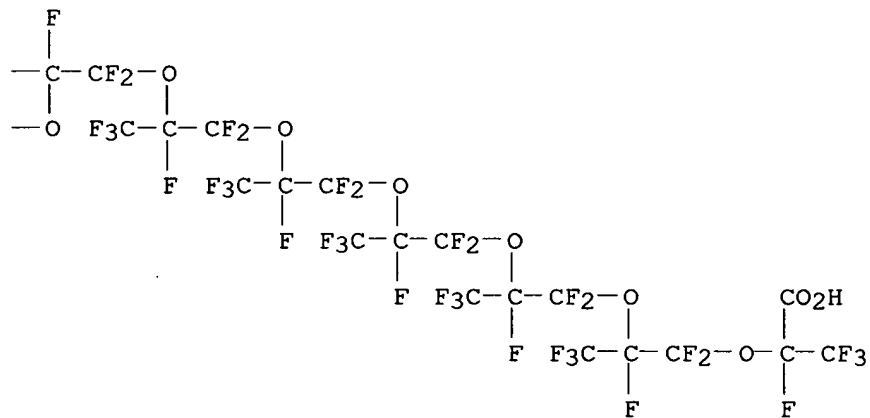






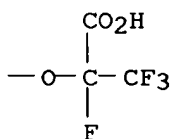
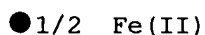
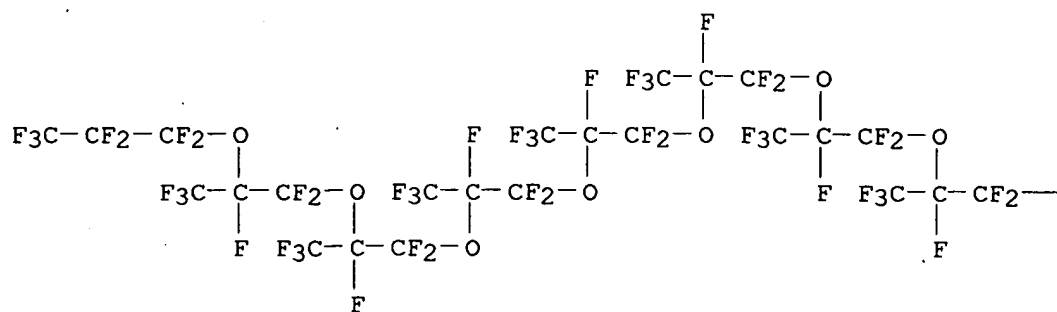


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Eicosaoxatrihexacontanoic acid, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,28,28,29,31,31,32,34,34,35,37,37,38,40,40,41,43,43,44,46,46,47,49,49,50,52,52,53,55,55,56,58,58,59,61,61,62,62,63,63,63-pentaheptafluoro-2,5,8,11,14,17,20,23,26,29,32,35,38,41,44,47,50,53,56,59-eicosakis(trifluoromethyl)-, lead(2+) salt (9CI)

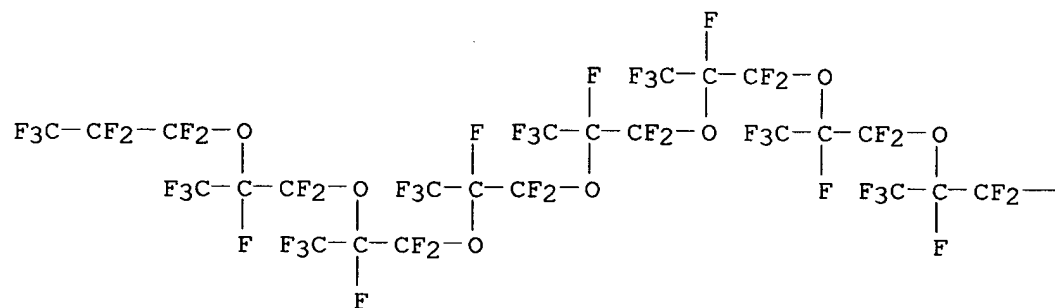
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L2 8 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
ITERATION INCOMPLETE

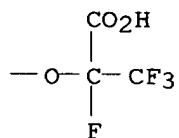
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acid, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,  
28,28,29,31,31,32,34,34,35,37,37,38,40,40,41,43,43,44,44,45,45,45-  
heptatetracontafluoro-2,5,8,11,14,17,20,23,26,29,32,35,38,41-  
tetradecakis(trifluoromethyl)-, lead(2+) salt (9CI)  
MF C45 H F89 O16 . 1/2 Pb

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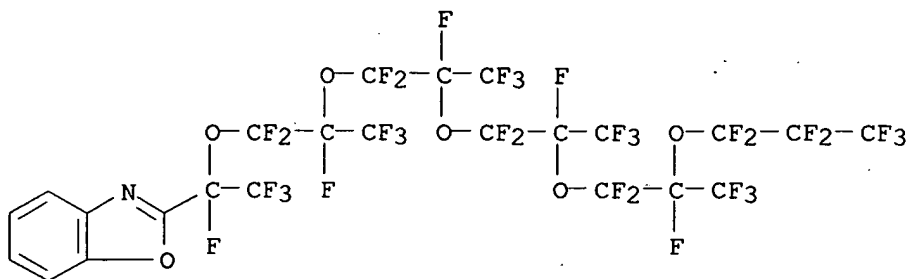


● Li

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L2 8 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN.  
 ITERATION INCOMPLETE  
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 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,26,27,  
 27,27-nonacosafuoro-2,5,8,11,14,17,20,23-octakis(trifluoromethyl)-,  
 iron(2+) salt (9CI)  
 MF C27 H F53 O10 . 1/2 Fe



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

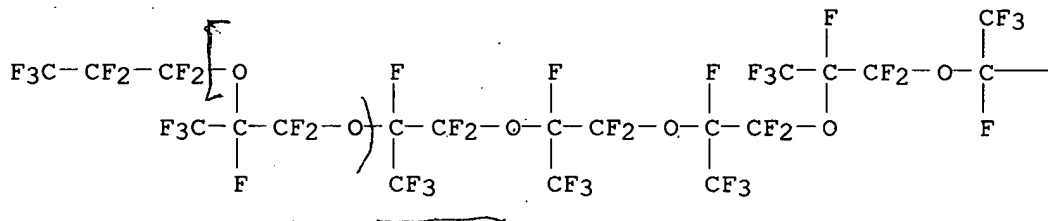
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):8

L2 8 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
ITERATION INCOMPLETE

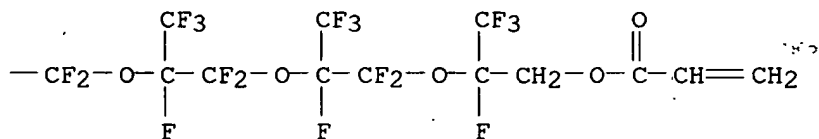
IN 2-Propenoic acid, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,  
23,25,25,26,28,28,29,29,30,30,30-dotriacontafluoro-2,5,8,11,14,17,20,23,26-  
nonakis(trifluoromethyl)-3,6,9,12,15,18,21,24,27-nonaoxatriacont-1-yl  
ester (9CI)

MF C33 H5 F59 O11

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\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L2 8 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
ITERATION INCOMPLETE

IN 3,6,9,12,15,18,21,24-Octaoxaheptacosanoic acid,  
2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,26,27,  
27,27-nonacosafuoro-2,5,8,11,14,17,20,23-octakis(trifluoromethyl)-,  
lithium salt (9CI)

MF C27 H F53 O10 . Li

10813525 PTFE

SQD - Protein sequence data, includes RN  
SQD3 - Same as SQD, but 3-letter amino acid codes are used  
SQN - Protein sequence name information, includes RN

CALC - Table of calculated properties  
EPROP - Table of experimental properties  
PROP - EPROP and CALC

Any CA File format may be combined with any substance format to obtain CA references citing the substance. The substance formats must be cited first. The CA File predefined formats are:

ABS -- Abstract  
APPS -- Application and Priority Information  
BIB -- CA Accession Number, plus Bibliographic Data  
CAN -- CA Accession Number  
CBIB -- CA Accession Number, plus Bibliographic Data (compressed)  
IND -- Index Data  
IPC -- International Patent Classification  
PATS -- PI, SO  
STD -- BIB, IPC, and NCL

IABS -- ABS, indented, with text labels  
IBIB -- BIB, indented, with text labels  
ISTD -- STD format, indented

OBIB ----- AN, plus Bibliographic Data (original)  
OIBIB ----- OBIB, indented with text labels

SBIB ----- BIB, no citations  
SIBIB ----- IBIB, no citations

The ALL format gives FIDE BIB ABS IND RE, plus sequence data when it is available.

The MAX format is the same as ALL.

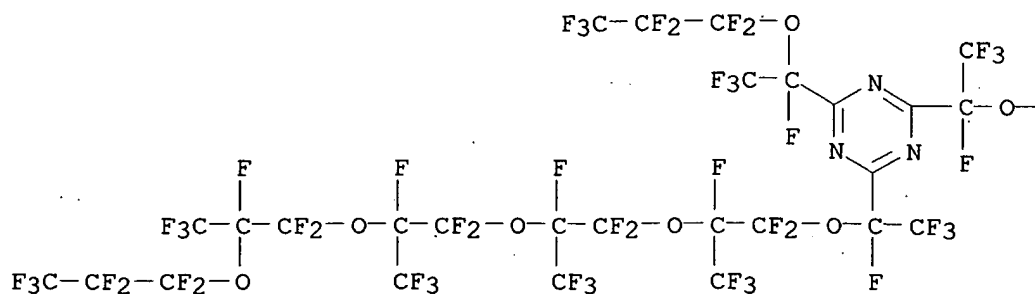
The IALL format is the same as ALL with BIB ABS and IND indented, with text labels.

For additional information, please consult the following help messages:

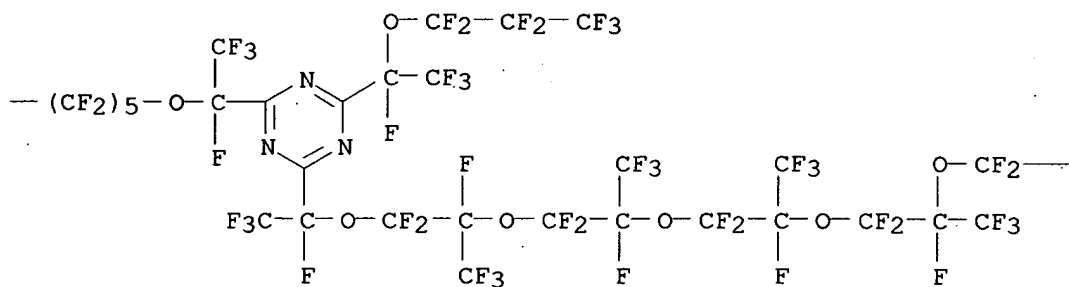
HELP DFIELDS -- To see a complete list of individual display fields.  
HELP FORMATS -- To see detailed descriptions of the predefined formats.  
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L2 8 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
ITERATION INCOMPLETE  
IN Benzoxazole, 2-[1,3,3,4,6,6,7,9,9,10,12,12,13,15,15,16,16,17,17,17-  
eicosafuoro-1,4,7,10,13-pentakis(trifluoromethyl)-2,5,8,11,14-  
pentaohaheptadec-1-yl]- (9CI)  
MF C24 H4 F35 N O6

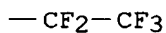
PAGE 1-A



PAGE 1-B



PAGE 1-C



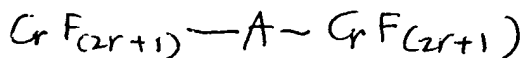
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

The following are valid formats:

Substance information can be displayed by requesting individual fields or predefined formats. The predefined substance formats are: (RN = CAS Registry Number)

REG - RN  
 SAM - Index Name, MF, and structure - no RN  
 FIDE - All substance data, except sequence data  
 IDE - FIDE, but only 50 names  
 SQIDE - IDE, plus sequence data  
 SQIDE3 - Same as SQIDE, but 3-letter amino acid codes are used

10813525 PTFE



=>

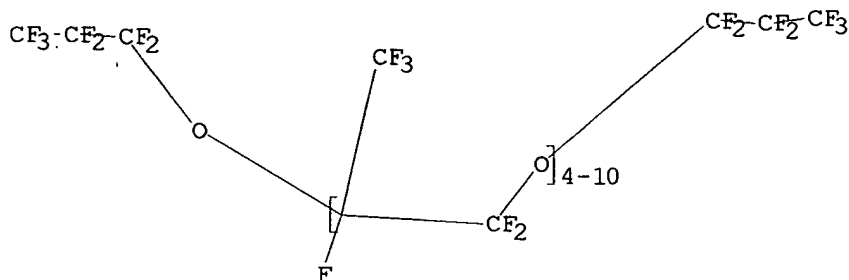
Uploading C:\Program Files\Stnexp\Queries\2007 cases\10813525\first PTFE formula.str

L1 STRUCTURE UPLOADED

=> dis l1

L1 HAS NO ANSWERS

L1 STR



L1  
41 hits  
file he gnlus

Structure attributes must be viewed using STN Express query preparation.

=> s l1 sss sam

SAMPLE SEARCH INITIATED 08:22:23 FILE 'REGISTRY'

SAMPLE SCREEN SEARCH COMPLETED - 56 TO ITERATE

100.0% PROCESSED

56 ITERATIONS ( 8 INCOMPLETE)

8 ANSWERS

SEARCH TIME: 00.00.06

FULL FILE PROJECTIONS: ONLINE \*\*COMPLETE\*\*  
BATCH \*\*COMPLETE\*\*

PROJECTED ITERATIONS: 672 TO 1568

PROJECTED ANSWERS: 8 TO 329

L2

8 SEA SSS SAM L1

=> d scan 1-8

'1-8' IS NOT A VALID FORMAT FOR FILE 'REGISTRY'

L2 8 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
ITERATION INCOMPLETE

IN 1,3,5-Triazine, 2,2'-[(1,1,2,2,3,3,4,4,5,5-decafluoro-1,5-pentenediyl)bis[oxy(tetrafluoroethylidene)]]bis[4-[1,3,3,4,6,6,7,9,9,10,12,12,13,15,15,16,16,17,17,17-eicosafluoro-1,4,7,10,13-pentakis(trifluoromethyl)-2,5,8,11,14-pentaoxaheptadec-1-yl]-6-[1,2,2,2-tetrafluoro-1-(heptafluoropropoxy)ethyl]- (9CI)

MF C59 F110 N6 O14



10813525 PTFE L16 2hits

$$CrF_{(2r+1)} - A - CrF_{(2r+1)}$$

10/813525

=> dis his

$$r=3 \text{ and } A = 0 - (CF_2 CF_2 CF_2 - 0) \times$$

(FILE 'HOME' ENTERED AT 08:21:40 ON 23 JAN 2007)

FILE 'REGISTRY' ENTERED AT 08:21:52 ON 23 JAN 2007

L1 STRUCTURE UPLOADED  
L2 8 S L1 SSS SAM  
L3 164 S L1 SSS FULL

FILE 'HCAPLUS' ENTERED AT 08:25:47 ON 23 JAN 2007

L4 41 S L3/PREP  
SAVE L1-L4 PFPE1/L  
L5 STRUCTURE UPLOADED  
S L5

FILE 'REGISTRY' ENTERED AT 08:50:54 ON 23 JAN 2007

L6 0 S L5 SSS SAM

FILE 'HCAPLUS' ENTERED AT 08:50:55 ON 23 JAN 2007

L7 0 S L6 SSS SAM  
S L5

FILE 'REGISTRY' ENTERED AT 08:51:05 ON 23 JAN 2007

L8 0 S L5 SSS FULL

FILE 'HCAPLUS' ENTERED AT 08:51:07 ON 23 JAN 2007

L9 0 S L8 SSS FULL

FILE 'HCAPLUS' ENTERED AT 08:51:21 ON 23 JAN 2007

L10 0 S L9

FILE 'REGISTRY' ENTERED AT 08:55:41 ON 23 JAN 2007

L11 STRUCTURE UPLOADED

FILE 'REGISTRY' ENTERED AT 09:00:27 ON 23 JAN 2007

L12 STRUCTURE UPLOADED  
L13 0 S L12 SSS SAM  
L14 0 S L12 SSS FULL

FILE 'HCAPLUS' ENTERED AT 09:01:44 ON 23 JAN 2007

L15 0 S L14

FILE 'REGISTRY' ENTERED AT 09:06:49 ON 23 JAN 2007

L16 STRUCTURE UPLOADED  
L17 0 S L16 SSS SAM  
L18 1 S L16 SSS FULL

FILE 'HCAPLUS' ENTERED AT 09:08:11 ON 23 JAN 2007

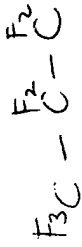
=> s l18/prep

2 L18  
4349283 PREP/RL  
L19 0 L18/PREP  
(L18 (L) PREP/RL)

=> s l18

L20 2 L18

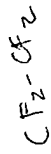
2 hits  
hit  
not relevant



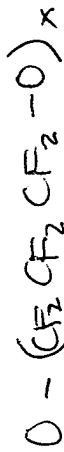
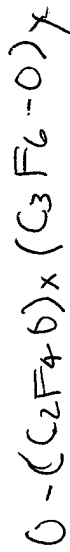
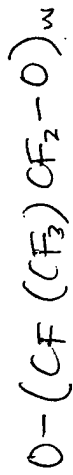
$r = 3-6$



perfluoropropyl radicals



A is preferably



$w = 4-100$

$x \begin{matrix} x \\ y \\ z \end{matrix} \begin{matrix} 1-100 \\ 1-100 \\ 1-100 \end{matrix}$

$0 \text{ hits}$

$2 \text{ hits}$

L1  
L5

L16

Japan

SOURCE: Journal of Fluorine Chemistry (1984), 25(2), 241-53  
CODEN: JFLCAR; ISSN: 0022-1139

DOCUMENT TYPE: Journal  
LANGUAGE: English

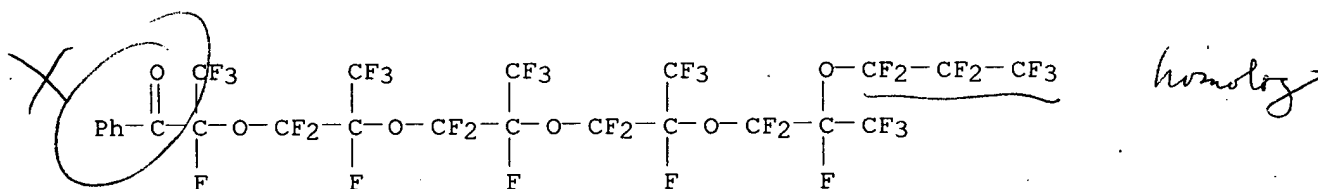
AB Oil-soluble surfactants  $\text{CF}_3\text{CF}_2\text{CF}_2\text{O}[\text{CF}(\text{CF}_3)\text{CF}_2\text{O}]_n\text{-2CF}(\text{CF}_3)\text{COR}$  (I) ( $\text{R} = \text{Ph}$  or  $p\text{-tolyl}$ ,  $n = 2\text{-}6$ ) were prepared by acylating arenes with hexafluoropropylene oxide oligomers. These surfactants (0.2-0.5%) decreased the surface tensions of toluene and  $m$ -xylene to 12-14 dynes/cm. Water-soluble surfactants I [ $\text{R} = m\text{-(NaO}_3\text{S)C}_6\text{H}_4$  or  $4\text{-Me-3-(NaO}_3\text{S)C}_6\text{H}_3$ ,  $n = 2\text{-}6$ ] were also prepared. Some of the surfactants (i.e.,  $n = 4\text{-}6$ ) decreased the surface tension of water to 16 dynes/cm at a concentration of  $10\text{-}4\text{-}10\text{-}5\text{M}$ .

IT 85142-18-3P 85142-20-7P 91400-67-8P  
91400-72-5P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation and surfactant properties of)

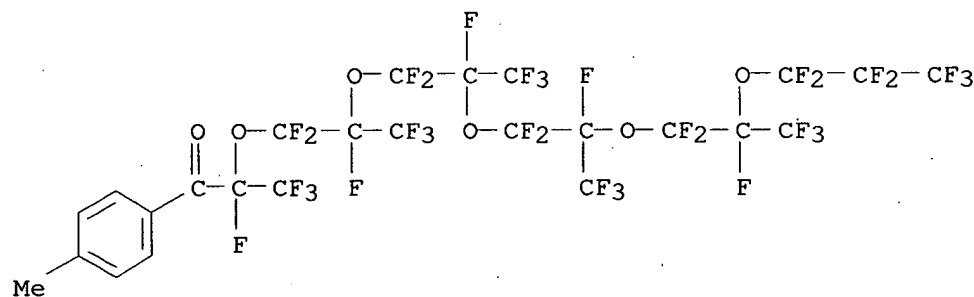
RN 85142-18-3 HCAPLUS

CN 3,6,9,12,15-Pentaoxaoctadecan-1-one, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,17,18,18,18-eicosafluoro-1-phenyl-2,5,8,11,14-pentakis(trifluoromethyl)- (9CI) (CA INDEX NAME)



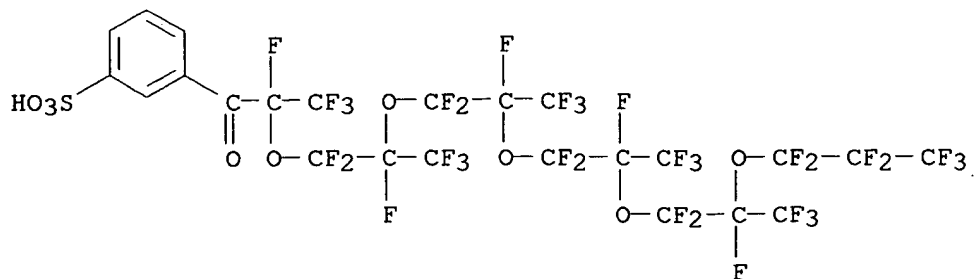
RN 85142-20-7 HCAPLUS

CN 3,6,9,12,15-Pentaoxaoctadecan-1-one, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,17,18,18,18-eicosafluoro-1-(4-methylphenyl)-2,5,8,11,14-pentakis(trifluoromethyl)- (9CI) (CA INDEX NAME)



RN 91400-67-8 HCAPLUS

CN Benzenesulfonic acid, 3-[2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,17,18,18,18-eicosafluoro-1-oxo-2,5,8,11,14-pentakis(trifluoromethyl)-3,6,9,12,15-pentaoxaoctadec-1-yl]-, sodium salt (9CI) (CA INDEX NAME)

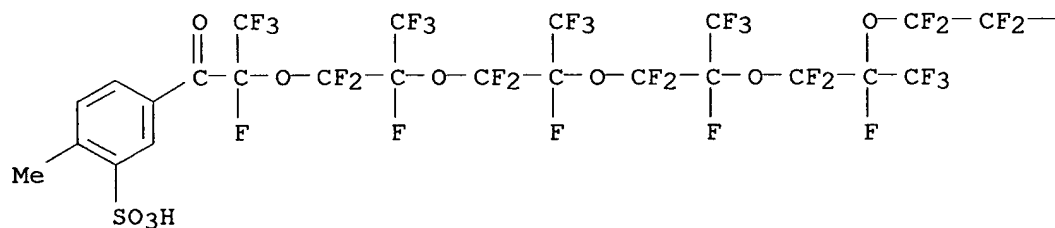


● Na

RN 91400-72-5 HCAPLUS

CN Benzenesulfonic acid, 5-[2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,17,18,18,18-eicosafluoro-1-oxo-2,5,8,11,14-pentakis(trifluoromethyl)-3,6,9,12,15-pentaoxaoctadec-1-yl]-2-methyl-, sodium salt (9CI) (CA INDEX NAME)

PAGE 1-A



● Na

PAGE 1-B

—CF<sub>3</sub>

L4 ANSWER 23 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1984:211594 HCAPLUS

DOCUMENT NUMBER: 100:211594

TITLE: Water and oil repellents

PATENT ASSIGNEE(S): Nippon Mektron K. K., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 58164672	A	19830929	JP 1982-46566	19820324
JP 63042954	B	19880826		

## PRIORITY APPLN. INFO.:

JP 1982-46566 19820324

AB The title repellents contain a polymer having pendant poly(oxyperfluoropropylene) groups in the side chain. The repellents have excellent repellency and wash-resistance without damaging the color tone and hand of textiles. Thus, deionized water (50-60°) 220, trimethyloctadecylammonium chloride 15, a mixture of H<sub>2</sub>C:CHCO<sub>2</sub>CH<sub>2</sub>CF(CF<sub>3</sub>)[OCF<sub>2</sub>CF(CF<sub>3</sub>)]<sub>n</sub>OCF<sub>2</sub>CF<sub>2</sub>CF<sub>3</sub> (n = 0 and 1) 100, 2-hydroxyethyl acrylate 0.5, N-methylolacrylamide 0.5 and acetone 100 parts were copolymd. by adding azodiisobutylamidine hydrochloride [15453-05-1] 0.05 part; the aqueous latex solution obtained was used to impregnate a cotton cloth for 5 min. The cloth showed excellent water- and oil-repellency.

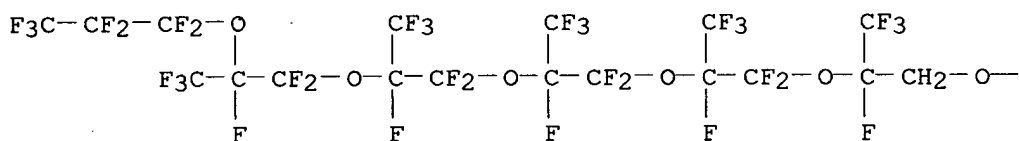
IT 89965-07-1P 90334-96-6P

RL: IMF (Industrial manufacture); PREP (Preparation)  
(preparation of)

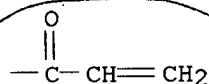
RN 89965-07-1 HCAPLUS

CN 2-Propenoic acid, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,17,18,18,18-eicosafuoro-2,5,8,11,14-pentakis(trifluoromethyl)-3,6,9,12,15-pentaaoctadec-1-yl ester (9CI) (CA INDEX NAME)

PAGE 1-A



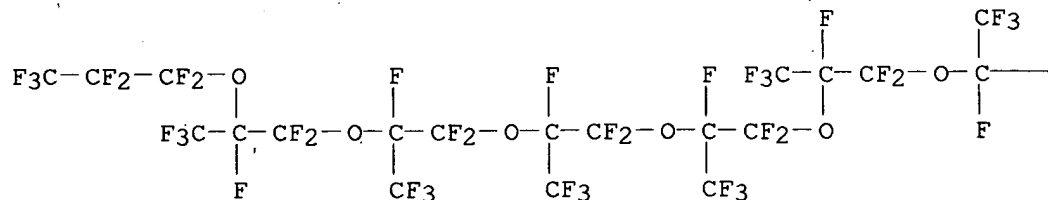
PAGE 1-B

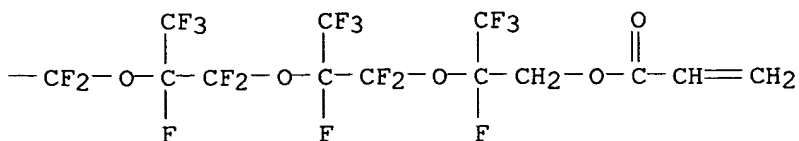


RN 90334-96-6 HCAPLUS

CN 2-Propenoic acid, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,28,28,29,29,30,30,30-dotriacontafluoro-2,5,8,11,14,17,20,23,26-nonakis(trifluoromethyl)-3,6,9,12,15,18,21,24,27-nonaotriacont-1-yl ester (9CI) (CA INDEX NAME)

PAGE 1-A





L4 ANSWER 24 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1984:192504 HCAPLUS  
 DOCUMENT NUMBER: 100:192504  
 TITLE: Acrylic acid esters  
 PATENT ASSIGNEE(S): Nippon Mectron Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 58194839	A	19831112	JP 1982-77657	19820510
JP 63058816	B	19881117		

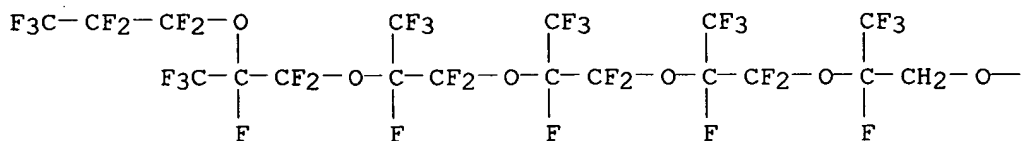
PRIORITY APPLN. INFO.: JP 1982-77657 19820510

AB H<sub>2</sub>C:CHCO<sub>2</sub>QCF(CF<sub>3</sub>)[OCF<sub>2</sub>CF(CF<sub>3</sub>)]<sub>n</sub>OCF<sub>2</sub>CF<sub>2</sub>CF<sub>3</sub> [I; n = 1, 2, 4; Q = CH<sub>2</sub>, CH<sub>2</sub>CH<sub>2</sub>O<sub>2</sub>C, CH<sub>2</sub>CH(OH)CH<sub>2</sub>O<sub>2</sub>C, CH<sub>2</sub>CH(CH<sub>2</sub>OH)O<sub>2</sub>C, CH<sub>2</sub>CH<sub>2</sub>NMeCO] were prepared by esterification of F<sub>3</sub>CCF<sub>2</sub>CF<sub>2</sub>O[CF(CF<sub>3</sub>)CF<sub>2</sub>O]<sub>n</sub>CF(CF<sub>3</sub>)QOH (II) with H<sub>2</sub>O:CHCO<sub>2</sub>X (III; X = halogen). Thus, 27 g III (X = Cl) [814-68-6] was added to a mixture of 100 g II (Q = CH<sub>2</sub>, n = 1) [14548-74-4] and 0.1 g hydroquinone and the mixture kept 5 h at 70° with addition of 20 mL pyridine to give 74.4 % I (Q = CH<sub>2</sub>, n = 1) [17559-01-2], useful as a monomer in the manufacture of water- and oil-repelling polymers.

IT 89965-07-1P  
 RL: PREP (Preparation)  
 (preparation of)

RN 89965-07-1 HCAPLUS

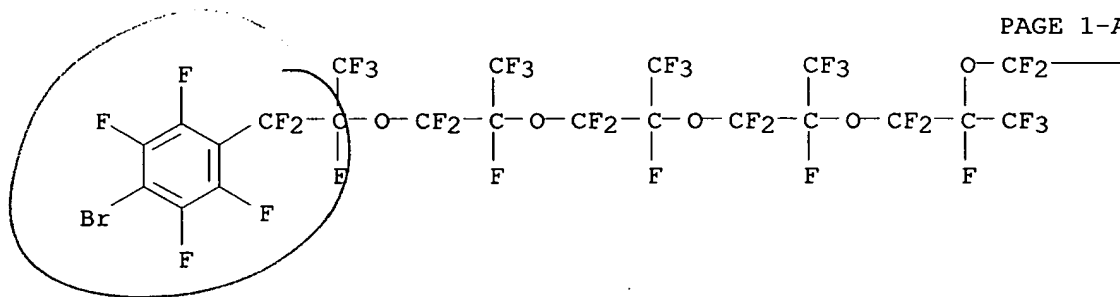
CN 2-Propenoic acid, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,17,18,18,18-eicosafuoro-2,5,8,11,14-pentakis(trifluoromethyl)-3,6,9,12,15-pentaoxaoctadec-1-yl ester (9CI) (CA INDEX NAME)





phenyl)phosphines  
 AUTHOR(S): Gopal, H.; Snyder, C. E., Jr.; Tamborski, C.  
 CORPORATE SOURCE: Air Force Mater. Lab., Wright-Patterson Air Force  
 Base, OH, 45433, USA  
 SOURCE: Journal of Fluorine Chemistry (1979), 14(6), 511-18  
 CODEN: JFLCAR; ISSN: 0022-1139  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB Grignard reaction of p-BrC<sub>6</sub>H<sub>4</sub>MgBr with CuX gave p-BrC<sub>6</sub>H<sub>4</sub>Cu, which, with  
 RCOF, gave p-BrC<sub>6</sub>H<sub>4</sub>COR. This was fluorinated to give p-BrC<sub>6</sub>H<sub>4</sub>CF<sub>2</sub>R, which  
 was lithiated and treated with P(C<sub>6</sub>F<sub>4</sub>CF<sub>2</sub>R-p)<sub>3</sub> [R = CF(CF<sub>3</sub>)OC<sub>3</sub>F<sub>7</sub>,  
 CF(CF<sub>3</sub>)OCF<sub>2</sub>CF(CF<sub>3</sub>)OC<sub>3</sub>F<sub>7</sub>, CF(CF<sub>3</sub>)[OCF<sub>2</sub>CF(CF<sub>3</sub>)]<sub>4</sub>OC<sub>3</sub>F<sub>7</sub>, CF<sub>2</sub>(OC<sub>2</sub>F<sub>4</sub>)<sub>2</sub>OC<sub>2</sub>F<sub>5</sub>,  
 CF<sub>2</sub>(OCF<sub>2</sub>)<sub>3</sub>OCF<sub>3</sub>].  
 IT 60799-28-2P 73363-12-9P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP  
 (Preparation); RACT (Reactant or reagent)  
 (preparation and reaction with chlorophosphines)  
 RN 60799-28-2 HCAPLUS  
 CN 3,6,9,12,15-Pentaoxaoctadecane, 1-(4-bromo-2,3,5,6-tetrafluorophenyl)-  
 1,1,2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,17,18,18,18-docosafluoro-  
 2,5,8,11,14-pentakis(trifluoromethyl)- (9CI) (CA INDEX NAME)

PAGE 1-A

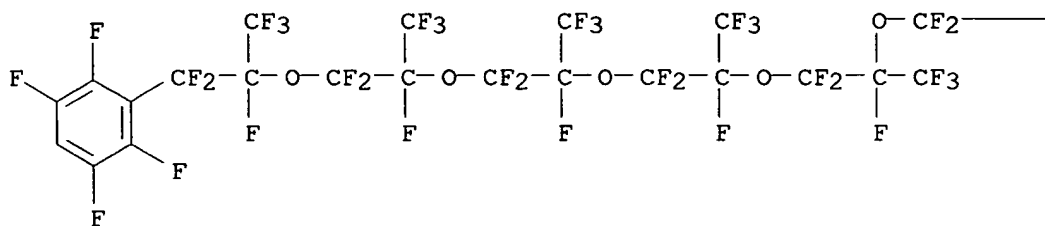


PAGE 1-B

—CF<sub>2</sub>—CF<sub>3</sub>

RN 73363-12-9 HCAPLUS  
 CN 3,6,9,12,15-Pentaoxaoctadecane, 1,1,2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,  
 17,17,18,18,18-docosafluoro-1-(2,3,5,6-tetrafluorophenyl)-2,5,8,11,14-  
 pentakis(trifluoromethyl)- (9CI) (CA INDEX NAME)

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—CF<sub>2</sub>—CF<sub>3</sub>

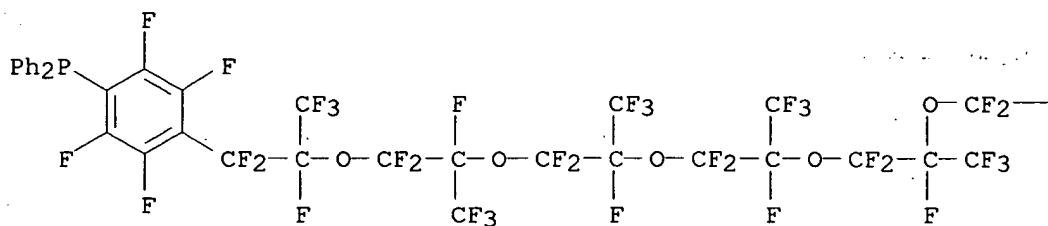
IT 60799-25-9P 73363-14-1P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

RN 60799-25-9 HCAPLUS

CN Phosphine, [4-[1,1,2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,17,18,18,18-docosafluoro-2,5,8,11,14-pentakis(trifluoromethyl)-3,6,9,12,15-pentaoxaoctadec-1-yl]-2,3,5,6-tetrafluorophenyl]diphenyl- (9CI) (CA INDEX NAME)

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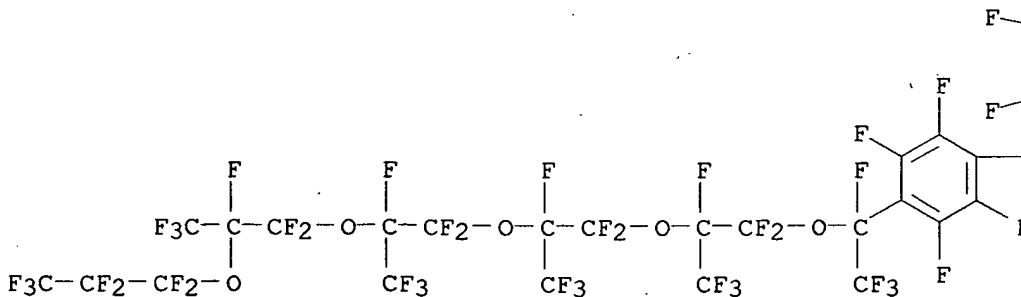
PAGE 1-B

—CF<sub>2</sub>—CF<sub>3</sub>

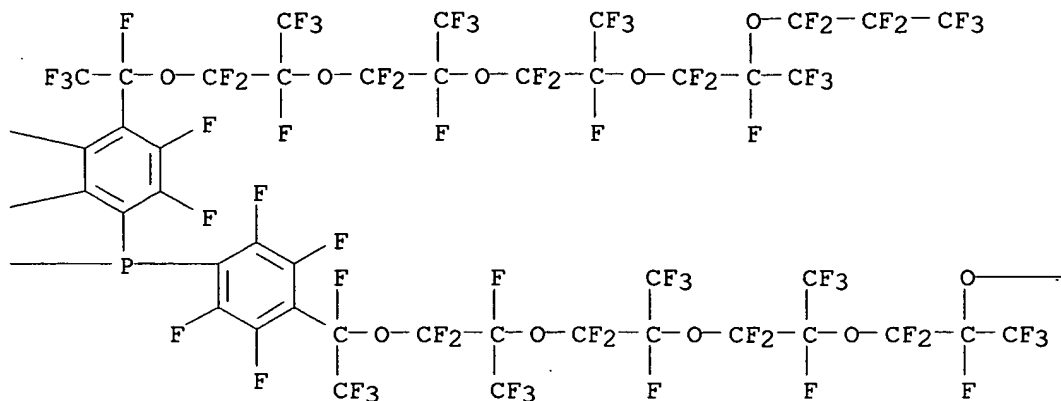
RN 73363-14-1 HCAPLUS

CN Phosphine, tris[4-[1,3,3,4,6,6,7,9,9,10,12,12,13,15,15,16,16,17,17,17-eicosafluoro-1,4,7,10,13-pentakis(trifluoromethyl)-2,5,8,11,14-pentaoxaheptadec-1-yl]-2,3,5,6-tetrafluorophenyl]- (9CI) (CA INDEX NAME)

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PAGE 1-C

—CF<sub>2</sub>—CF<sub>2</sub>—CF<sub>3</sub>

L4 ANSWER 27 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1979:456549 HCAPLUS

DOCUMENT NUMBER: 91:56549

TITLE: Fluoro ketones. II. Reactions of fluorocarbon Grignards and copper compounds with perfluoroalkyl acid fluorides

AUTHOR(S): Gopal, H.; Tamborski, C.

CORPORATE SOURCE: Air Force Mater. Lab., Wright-Patterson AFB, OH, 45433, USA

SOURCE: Journal of Fluorine Chemistry (1979), 13(4), 337-51  
CODEN: JFLCAR; ISSN: 0022-1139

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The reactions between C<sub>6</sub>F<sub>5</sub>MgBr, p-BrC<sub>6</sub>F<sub>4</sub>MgBr, C<sub>6</sub>F<sub>5</sub>Cu, p-HC<sub>6</sub>F<sub>4</sub>Cu and p-BrC<sub>6</sub>F<sub>4</sub>Cu with primary and secondary perfluoroalkyl ether acid fluorides were studied. The Grignard compds. reacted very slowly with the secondary acid halides [RfCF(CF<sub>3</sub>)COF, Rf = perfluoroalkyl, optionally containing O] owing to competing reaction which produced undesirable by-products and reduced ketone yields. Primary acid halides (RfCF<sub>2</sub>COF) reacted much faster with C<sub>6</sub>F<sub>5</sub>MgBr to give the ketone in improved yields. The organo-copper compds. reacted with either primary or secondary acid halides to give the ketone in excellent yields with no by-product

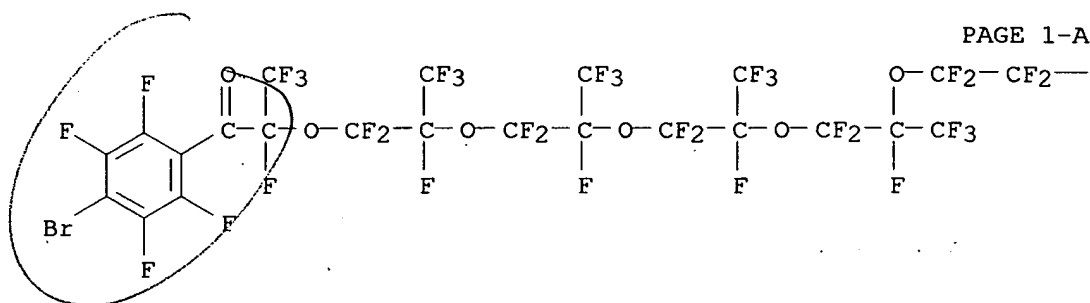
formation from competing secondary reactions. Solvents also influenced product yield and product distribution.

IT 70627-99-5P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

RN 70627-99-5 HCAPLUS

CN 3,6,9,12,15-Pentaoxaoctadecan-1-one, 1-(4-bromo-2,3,5,6-tetrafluorophenyl)-  
2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,17,18,18,18-eicosafluoro-  
2,5,8,11,14-pentakis(trifluoromethyl)- (9CI) (CA INDEX NAME)



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— CF<sub>3</sub>

L4 ANSWER 28 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1978:459661 HCAPLUS

DOCUMENT NUMBER: 89:59661

TITLE: Perfluoro ketones

INVENTOR(S): Martini, Thomas; Kluge, Friedhelm

PATENT ASSIGNEE(S): Hoechst A.-G., Fed. Rep. Ger.

SOURCE: Ger. Offen., 21 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

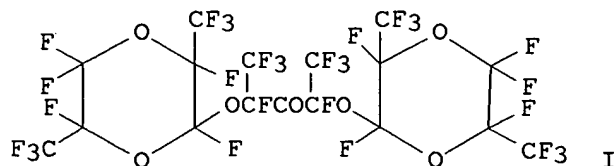
LANGUAGE: German

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 2648123	A1	19780427	DE 1976-2648123	19761023
DE 2648123	C2	19850425		
NL 7711424	A	19780425	NL 1977-11424	19771018
US 4136121	A	19790123	US 1977-844049	19771020
CA 1086756	A1	19800930	CA 1977-289210	19771021
BE 860038	A1	19780424	BE 1977-181996	19771024
FR 2368457	A1	19780519	FR 1977-31910	19771024
GB 1576402	A	19801008	GB 1977-44160	19771024
PRIORITY APPLN. INFO.:			DE 1976-2648123	A 19761023
			DE 1977-2704607	A 19770204

GI



AB Perfluoro ketones R1COR2 (R1 = C2-20 perfluoroalkyl or -cycloalkyl, with 1 or more ether O atoms; R2 = C1-50 perfluoroalkyl or -cycloalkyl, with 1 or more ether O atoms) were prepared by 5 methods. Thus, K perfluoro-[ $\alpha$ -(3,6-dimethyl-1,4-dioxan-2-yloxy)propionate] was stirred with tetraglyme and perfluoro-[ $\alpha$ -(3,6-dimethyl-1,4-dioxan-2-yloxy)propionyl fluoride] 8 h at 130° to give 81.8% ketone I.

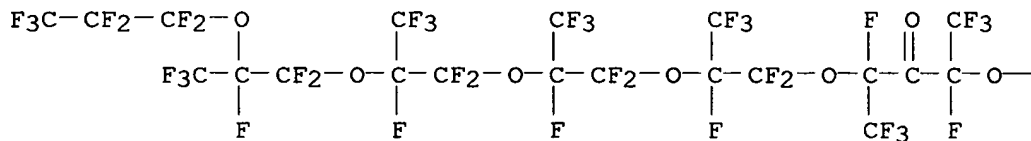
IT 67118-53-0P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

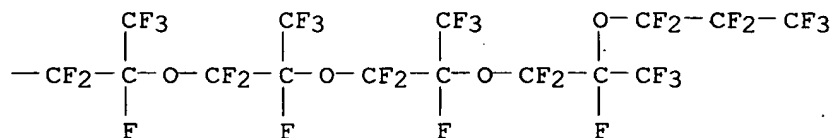
RN 67118-53-0 HCAPLUS

CN 4,7,10,13,16,20,23,26,29,32-Decaoxapentatriacontan-18-one,  
1,1,1,2,2,3,3,5,6,6,8,9,9,11,12,12,14,15,15,17,19,21,21,22,24,24,25,27,27,  
28,30,30,31,33,33,34,34,35,35,35-tetracontafluoro-  
5,8,11,14,17,19,22,25,28,31-decakis(trifluoromethyl)- (9CI) (CA INDEX  
NAME)

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L4 ANSWER 29 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1976:560320 HCAPLUS

DOCUMENT NUMBER: 85:160320

TITLE: Perfluoroalkyl ether-substituted aryl phosphines and their synthesis

INVENTOR(S): Tamborski, Christ

PATENT ASSIGNEE(S): United States Dept. of the Air Force, USA

SOURCE: U. S. Pat. Appl., 15 pp. Avail. NTIS.

CODEN: XAXXAV

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 629469	A0	19751106	US 1975-629469	19751106
SE 423553	B	19820510	SE 1976-12165	19761102
SE 423553	C	19820819		
NL 188474	B	19920203	NL 1976-12135	19761102
NL 188474	C	19920701		
CA 1072121	A1	19800219	CA 1976-264801	19761103
CH 606398	A5	19781031	CH 1976-13996	19761105
FR 2330690	B1	19781222	FR 1976-33406	19761105
JP 59049237	B	19841201	JP 1976-133082	19761105
DE 2650722	C2	19860925	DE 1976-2650722	19761105
GB 1551425	A	19790830	GB 1976-46342	19761108
PRIORITY APPLN. INFO.:			US 1975-629469	A 19751106
			US 1976-681871	A 19760430

AB Grignard reaction of 0.1 mole 1,4-dibromotetrafluorobenzene with 0.1 mole  $\text{F}_3\text{C}(\text{CF}_2)_2\text{OCF}(\text{CF}_3)\text{CF}_2\text{OCF}(\text{CF}_3)\text{COF}$  gave 65.5%  $\text{F}_3\text{C}(\text{CF}_2)_2\text{OCF}(\text{CF}_3)\text{CF}_2\text{OCF}(\text{CF}_3)\text{COC}$  6F4 p-BR, which was fluorinated to give 68%  $\text{F}_3\text{C}(\text{CF}_2)_2\text{OCF}(\text{CF}_3)\text{CF}_2\text{OCF}(\text{CF}_3)\text{CF}_2\text{OCF}_4\text{Br-p}$  (I). The reaction of lithiated I with  $\text{PCl}_3$  gave 50%  $[\text{p-F}_3\text{C}(\text{CF}_2)_2\text{OCF}(\text{CF}_3)\text{CF}_2\text{OCF}(\text{CF}_3)\text{CF}_2\text{OCF}_4]_3\text{P}$  (II).  $\text{F}_3\text{C}(\text{CF}_2)_2\text{O}[\text{CF}(\text{CF}_3)\text{CF}_2\text{O}]_4\text{CF}(\text{CF}_3)\text{CF}_2\text{OCF}_4(\text{PPh}_2)\text{-p}$  (III) was similarly prepared II and III were useful as anticorrosion and antioxidant additives for perfluorinated engine oils, hydraulic fluids, and greases.

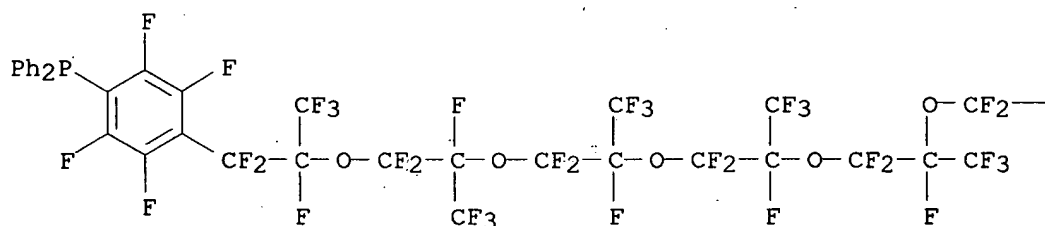
IT 60799-25-9P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation and anticorrosive properties of)

RN 60799-25-9 HCAPLUS

CN Phosphine, [4-[1,1,2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,17,18,18,18-docosafuoro-2,5,8,11,14-pentakis(trifluoromethyl)-3,6,9,12,15-pentaaoxaoctadec-1-yl]-2,3,5,6-tetrafluorophenyl]diphenyl- (9CI) (CA INDEX NAME)

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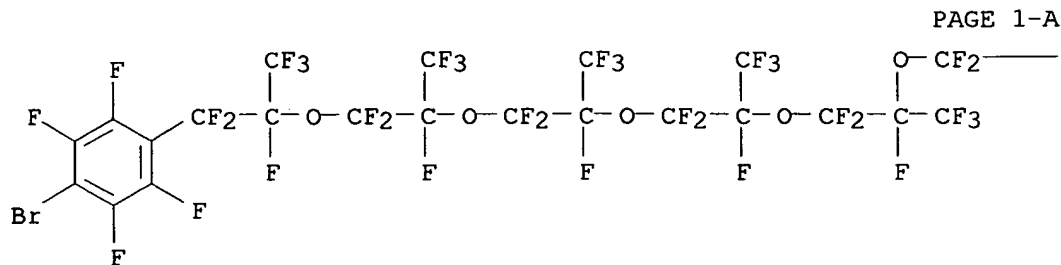
—CF<sub>2</sub>—CF<sub>3</sub>

IT 60799-28-2P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

RN 60799-28-2 HCAPLUS

CN 3,6,9,12,15-Pentaoxaoctadecane, 1-(4-bromo-2,3,5,6-tetrafluorophenyl)-  
1,1,2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,17,18,18,18-docosafluoro-  
2,5,8,11,14-pentakis(trifluoromethyl)- (9CI) (CA INDEX NAME)



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—CF<sub>2</sub>—CF<sub>3</sub>

L4 ANSWER 30 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1976:463699 HCAPLUS

DOCUMENT NUMBER: 85:63699

TITLE: Perfluorinated ethers

INVENTOR(S): ~~von Halasz, Sigmar P.~~; Kluge, Friedhelm

PATENT ASSIGNEE(S): Hoechst A.-G., Fed. Rep. Ger.

SOURCE: Ger. Offen., 24 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

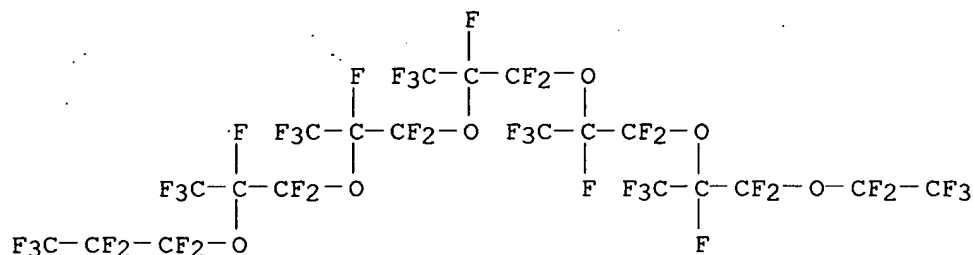
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 2451493	A1	19760506	DE 1974-2451493	19741030
DE 2451493	C2	19820624		
NL 7512495	A	19760504	NL 1975-12495	19751024
US 3985810	A	19761012	US 1975-626349	19751028
GB 1484823	A	19770908	GB 1975-44343	19751028
CA 1060482	A1	19790814	CA 1975-238542	19751029
FR 2289477	A1	19760528	FR 1975-33188	19751030
FR 2289477	B1	19790105		

PRIORITY APPLN. INFO.: DE 1974-2451493 A 19741030

AB The polyethers  $R_f[[OCF(R)CF_2]_xOCF_2R]_n$  (I) ( $R = F, CF_3$ ;  $R_f$  = perfluoroalkyl or perfluoroalkylene;  $n = 1-2$ ;  $x = 0-50$ ), useful as hydraulic fluids, heat transfer media, lubricants, etc., are prepared by reaction of F with  $R_f[[OCF(R)CF_2]_xOCF(R)COF]_n$  (II) in the presence of metal catalysts at  $50-350^\circ$ . Thus, adding 439.5 g II ( $R = CF_3$ ,  $R_f = CF(CF_3)CF(CF_3)$ ,  $n = 2$ ,  $x = 6.5-9.5$ ) [59859-32-4] over 19.5 hr to a Cu tube packed with silvered Cu filings with countercurrent addition of 0.8 l./hr 3:1 F-He at  $200-5^\circ$  gives 405 g I ( $R = CF_3$ ,  $R_f = CF(CF_3)CF(CF_3)$ ,  $n = 2$ ,  $x = 13.5-19.5$ ) [59859-33-5], b0.4-0.5 185-280°.

10813525 PTFE

IT 59884-34-3P  
RL: IMF (Industrial manufacture); PREP (Preparation)  
(manufacture of, by fluorination of acid fluoride derivs.)  
RN 59884-34-3 HCAPLUS  
CN 3,6,9,12,15,18-Hexaoxaheneicosane, 1,1,1,2,2,4,4,5,7,7,8,10,10,11,13,13,14,  
16,16,17,19,19,20,20,21,21,21-heptacosafuoro-5,8,11,14,17-  
pentakis(trifluoromethyl)- (9CI) (CA INDEX NAME)



L4 ANSWER 31 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 1975:593398 HCAPLUS  
DOCUMENT NUMBER: 83:193398  
TITLE: Bis-triazine compounds  
INVENTOR(S): Schuman, Paul D.; Stump, Eugene C., Jr.  
PATENT ASSIGNEE(S): PCR Inc., USA  
SOURCE: U.S., 6 pp.  
CODEN: USXXAM  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

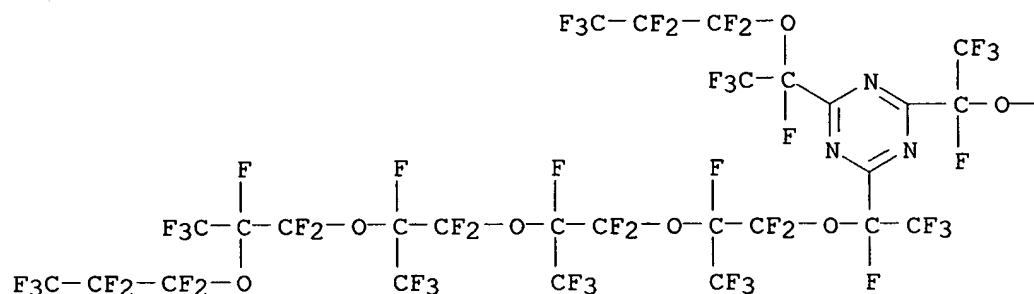
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 3888854	A	19750610	US 1971-200212	19711118
PRIORITY APPLN. INFO.:			US 1971-200212	A 19711118

GI For diagram(s), see printed CA Issue.

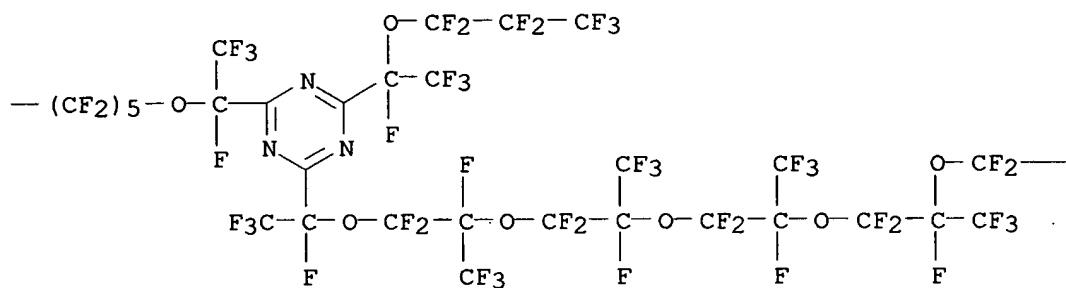
AB Eleven triazines I [R = F<sub>3</sub>C(CF<sub>2</sub>)<sub>2</sub>O[C(CF<sub>3</sub>)FCF<sub>2</sub>]<sub>4</sub>C(CF<sub>3</sub>)F, F<sub>3</sub>C(CF<sub>2</sub>)<sub>2</sub>O[C(CF<sub>3</sub>)FCF<sub>2</sub>O]nC(CF<sub>3</sub>)F (n = 1, 2, 3, 4); R<sub>1</sub> = F<sub>3</sub>C(CF<sub>2</sub>)<sub>2</sub>OC(CF<sub>3</sub>)F, F<sub>3</sub>C(CF<sub>2</sub>)<sub>2</sub>O[C(CF<sub>3</sub>)FCF<sub>2</sub>O]nC(CF<sub>3</sub>)F (n = 1-4); X = (CF<sub>2</sub>)<sub>4</sub>OC(CF<sub>3</sub>)F, C(CF<sub>3</sub>)F(CF<sub>2</sub>)<sub>3</sub>OC(CF<sub>3</sub>)F, etc.] were prepared by cyclization of H<sub>2</sub>NCR:NC(:NH)XC(:NH)N:CRNH<sub>2</sub> with (R<sub>1</sub>CO)<sub>2</sub>O or R<sub>1</sub>COF, I were useful as hydraulic fluids.

IT 57252-33-2P 57252-43-4P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)  
RN 57252-33-2 HCAPLUS  
CN 1,3,5-Triazine, 2,2'-[(1,1,2,2,3,3,4,4,5,5-decafluoro-1,5-pentanediy)bis[oxy(tetrafluoroethylidene)]]bis[4-[1,3,3,4,4,6,6,7,9,9,10,12,12,13,15,15,16,16,17,17,17-eicosafuoro-1,4,7,10,13-pentakis(trifluoromethyl)-2,5,8,11,14-pentaoxaheptadec-1-yl]-6-[1,2,2,2-tetrafluoro-1-(heptafluoropropoxy)ethyl]- (9CI) (CA INDEX NAME)

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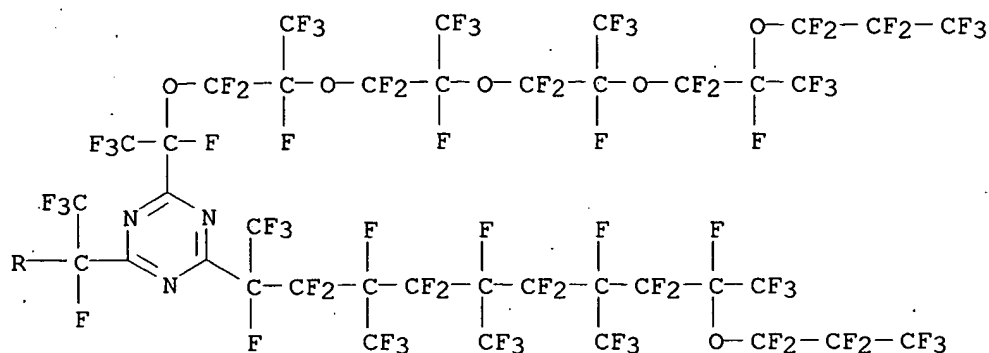
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RN 57252-43-4 HCAPLUS

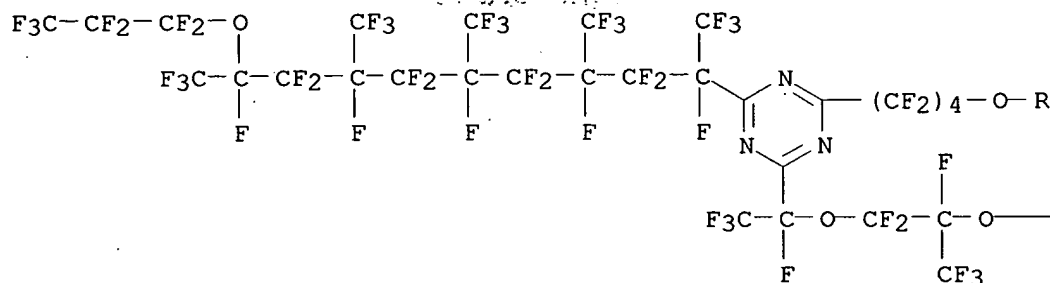
CN<sup>-</sup> 1,3,5-Triazine, 2-[4-[1,3,3,4,6,6,7,9,9,10,12,12,13,15,15,16,16,17,17,17-eicosafluoro-1,4,7,10,13-pentakis(trifluoromethyl)-2,5,8,11,14-pentaoxaheptadec-1-yl]-4-[1-[4-[1,3,3,4,6,6,7,9,9,10,12,12,13,15,15,16,16,17,17,17-eicosafluoro-1,4,7,10,13-pentakis(trifluoromethyl)-2,5,8,11,14-pentaoxaheptadec-1-yl]-6-[1,2,2,3,4,4,5,6,6,7,8,8,9,10,10,10-hexadecafluoro-9-(heptafluoropropoxy)-1,3,5,7-tetrakis(trifluoromethyl)decyl]-1,3,5-triazin-2-yl]-1,1,2,2,3,3,4,4-octafluorobutoxy]-1,2,2,2-tetrafluoroethyl]-6-[1,2,2,3,4,4,5,6,6,7,8,8,9,10,10,10-hexadecafluoro-9-(heptafluoropropoxy)-1,3,5,7-tetrakis(trifluoromethyl)decyl]- (9CI) (CA INDEX NAME)



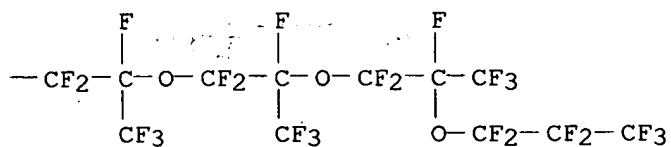
PAGE 1-A



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PAGE 2-B



L4 ANSWER 32 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1974:505583 HCAPLUS  
 DOCUMENT NUMBER: 81:105583  
 TITLE:  $\alpha,\omega$ -Di-s-triazinyl perfluorooxaalkanes  
 INVENTOR(S): Croft, Thomas S.; Zollinger, Joseph L.  
 PATENT ASSIGNEE(S): Minnesota Mining and Manufacturing Co.  
 SOURCE: U.S., 4 pp.  
 CODEN: USXXAM  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

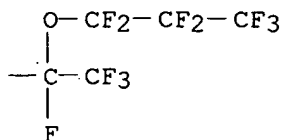
GI For diagram(s), see printed CA Issue.

IT 52809-38-8P

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(preparation and kinematic viscosity of)
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CN 1,3,5-Triazine, 2,2'-[(1,1,2,2-tetrafluoro-1,2-ethanediyl)bis[oxy(difluoromethylene)]]bis[4-[1,3,3,4,4,6,6,7,7,9,9,10,10,12,12,13,13,15,15,16,16,17,17,17-tetracosafuoro-1,4,7,10,13-pentakis(trifluoromethyl)-2,5,8,11,14-pentaoxahexadec-1-yl]-6-(trifluoromethyl)- (9CI) (CA INDEX NAME)

$$\begin{array}{c} \text{F} \\ | \\ \text{F}_3\text{C}-\text{C}-\text{CF}_2-\text{O}-\text{C}-\text{CF}_2-\text{O}-\text{C}-\text{CF}_2-\text{O}-\text{C}-\text{CF}_2-\text{O}-\text{C}-\text{CF}_3 \\ | \quad \quad \quad | \quad \quad \quad | \quad \quad \quad | \\ \text{CF}_3 \quad \quad \quad \text{CF}_3 \quad \quad \quad \text{CF}_3 \quad \quad \quad \text{CF}_3 \end{array}$$
$$\begin{array}{c} \text{---O---CF}_2\text{---CF}_2\text{---O---CF}_2\text{---} \\ | \\ \text{N} \\ | \\ \text{N} \\ | \\ \text{N} \\ | \\ \text{N} \\ | \\ \text{CF}_3 \end{array}$$
  
$$\begin{array}{ccccccc} & & \text{F} & & \text{CF}_3 & & \text{CF}_3 \\ & & | & & | & & | \\ \text{F}_3\text{C---C---O---CF}_2\text{---C---O---CF}_2\text{---C---O---CF}_2\text{---C---O---CF}_2\text{---} \\ & | & & | & & | & | \\ & \text{F} & & \text{CF}_3 & & \text{F} & \text{F} \end{array}$$



L4 ANSWER 33 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1974:413468 HCAPLUS

DOCUMENT NUMBER: 81:13468

TITLE: Perfluoroalkyl ether di-s-triazinyl substituted alkanes

AUTHOR(S): Croft, Thomas S.; Zollinger, J. L.; Snyder, Carl E., Jr.

CORPORATE SOURCE: Cent. Res. Lab., 3M Co., St. Paul, MN, USA

SOURCE: Industrial & Engineering Chemistry Product Research and Development (1974), 13(2), 144-7  
CODEN: IEPRA6; ISSN: 0196-4321

DOCUMENT TYPE: Journal

LANGUAGE: English

GI For diagram(s), see printed CA Issue.

AB A series of di-s-triazinyl substituted alkanes or dumbbell-s-triazines I (R and R1 = perfluoroalkyl or -oxaalkyl, Z = perfluoroalkylene or -oxaalkylene), based upon perfluoroalkylene oxide chains, was synthesized and evaluated for possible use as high-temperature fluids. The desired di-s-triazines were prepared by a cyclodehydration technique in which a diimidoylamidine was first formed from an  $\alpha,\omega$ -fluorocarbon dinitrile followed by ring closure using a fluorocarbon anhydride. Examination of the phys. data for these materials indicated that insertion of O linkages resulted in decreased viscosities, decreased ASTM slopes, and lower pour points. Correlations between the structures and phys. properties were observed, in that smooth curves were obtained when the carbon-oxygen ratios were plotted against ASTM slope, pour point, or viscosity index.

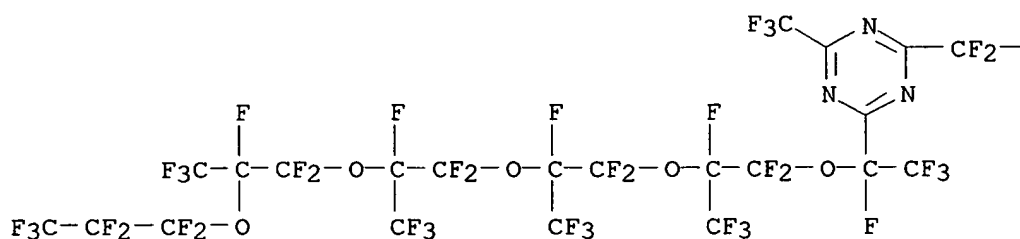
IT 52809-38-8P 52809-41-3P 52809-42-4P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

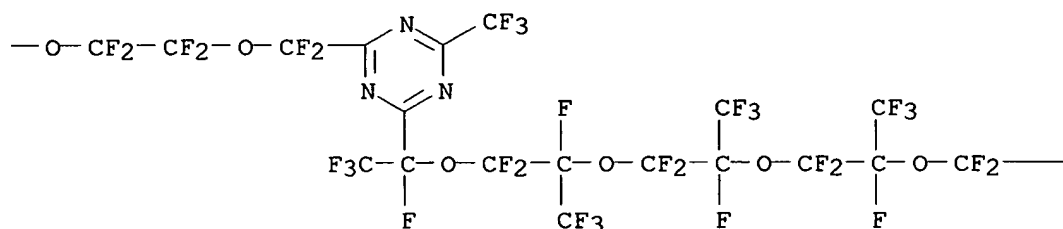
RN 52809-38-8 HCAPLUS

CN 1,3,5-Triazine, 2,2'-[(1,1,2,2-tetrafluoro-1,2-ethanediyl)bis[oxy(difluoromethylene)]]bis[4-[1,3,3,4,4,6,6,7,7,9,9,10,10,12,12,13,13,15,15,16,16,17,17,17-tetracosafuoro-1,4,7,10,13-pentakis(trifluoromethyl)-2,5,8,11,14-pentaoxahexadec-1-yl]-6-(trifluoromethyl)- (9CI) (CA INDEX NAME)

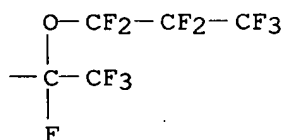
PAGE 1-A



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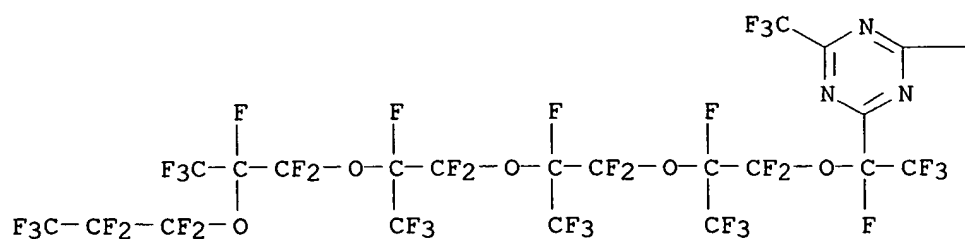
PAGE 1-C



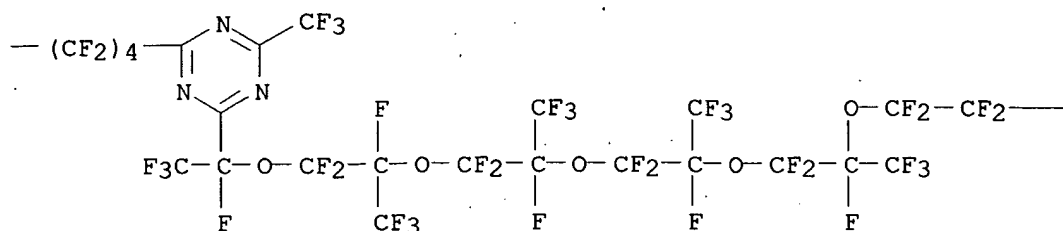
RN 52809-41-3 HCAPLUS

1,3,5-Triazine, 2,2'-(1,1,2,2,3,3,4,4-octafluoro-1,4-butanediyl)bis[4-[1,3,3,4,4,6,6,7,7,9,9,10,10,12,12,13,13,15,15,16,16,17,17,17-tetracosafuoro-1,4,7,10,13-pentakis(trifluoromethyl)-2,5,8,11,14-pentaoxaheptadec-1-yl]-6-(trifluoromethyl)- (9CI) (CA INDEX NAME)

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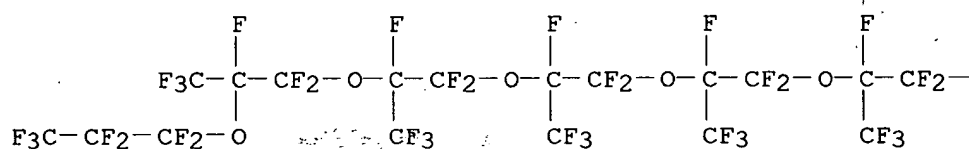
PAGE 1-C

---CF<sub>3</sub>

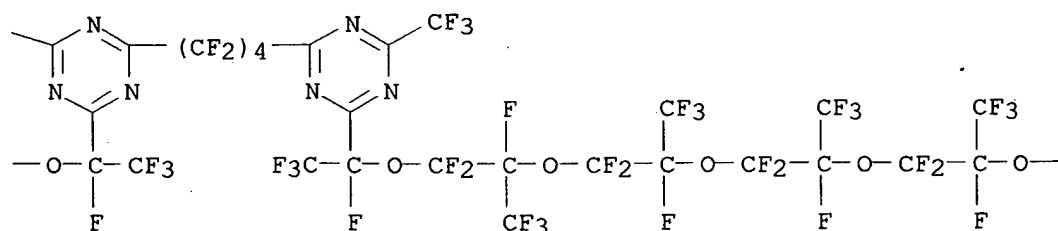
RN 52809-42-4 HCAPLUS

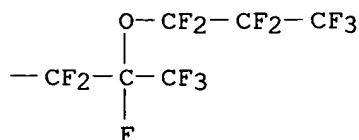
CN 1,3,5-Triazine, 2,2'-(1,1,2,2,3,3,4,4-octafluoro-1,4-butanediyl)bis[4-[1,3,3,4,4,6,6,7,7,9,9,10,10,12,12,13,13,15,15,16,16,18,18,19,19,20,20,20-octacosafuoro-1,4,7,10,13,16-hexakis(trifluoromethyl)-2,5,8,11,14,17-hexaoxaicos-1-yl]-6-(trifluoromethyl)- (9CI) (CA INDEX NAME)

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F<sub>3</sub>C

PAGE 1-B





L4 ANSWER 34 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1974:120276 HCAPLUS  
 DOCUMENT NUMBER: 80:120276  
 TITLE: Polyfluoroalkoxy alkyl amidocarboxylic acids and salts  
 INVENTOR(S): Bartlett, Philip L.  
 PATENT ASSIGNEE(S): du Pont de Nemours, E. I., and Co.  
 SOURCE: U.S., 6 pp.  
 CODEN: USXXAM  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

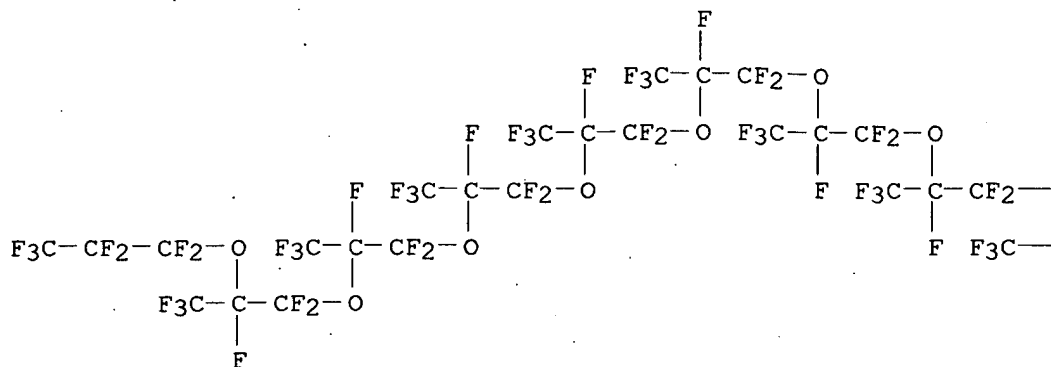
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 3798265	A	19740319	US 1969-868597	19691022
PRIORITY APPLN. INFO.:			US 1969-868597	A 19691022

AB Some novel surfactant and emulsifying compds. derived from CF<sub>3</sub>(CF<sub>2</sub>)<sub>2</sub>OCF(CF<sub>3</sub>)CF<sub>2</sub>OCF(CF<sub>3</sub>)COF (I) and amino acids were prepared. Thus, reaction of MeNHCH<sub>2</sub>CO<sub>2</sub>H with I, followed by conversion of the resulting acid to an NH<sub>4</sub> salt, gave 94.5% CF<sub>3</sub>(CF<sub>2</sub>)<sub>2</sub>OCF(CF<sub>3</sub>)CF<sub>2</sub>OCF(CF<sub>3</sub>)CONMeCH<sub>2</sub>CO<sub>2</sub>NH<sub>4</sub> (II). Approx. 25 similar compds. were prepared. Their surface tension was measured; e.g., CF<sub>3</sub>CF<sub>2</sub>CF<sub>2</sub>OCF(CF<sub>3</sub>)CONHCH<sub>2</sub>CO<sub>2</sub>NH<sub>4</sub> at 0.001-1.0 gm/ml had surface tension 60.2-19.3 dynes/cm. II at 1.0-2.5 g/100 ml had good emulsion stability.

IT 51929-88-5P 52011-68-4P 52011-69-5P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)

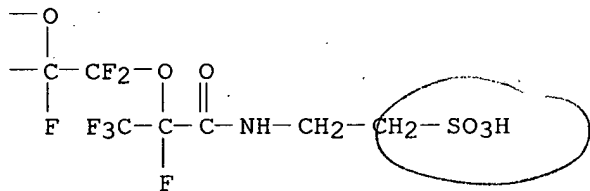
RN 51929-88-5 HCAPLUS  
 CN 6,9,12,15,18,21,24,27,30-Nonaoxa-3-azatritriacontane-1-sulfonic acid, 5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,28,28,29,31,31,32,32,33,33,33-dotriacontafluoro-4-oxo-5,8,11,14,17,20,23,26,29-nonakis(trifluoromethyl)-, monopotassium salt (9CI) (CA INDEX NAME)

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● K

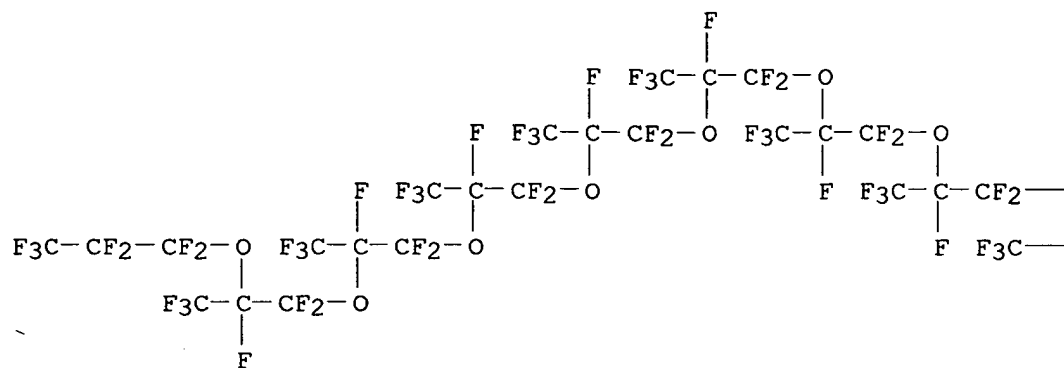
PAGE 1-B



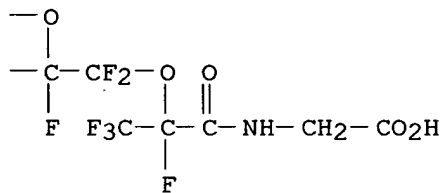
RN 52011-68-4 HCAPLUS

CN 6,9,12,15,18,21,24,27,30-Nona-3-azatritriacontanoic acid,  
 5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,28,28,29,31,  
 31,32,32,33,33,33-dotriacontafluoro-4-oxo-5,8,11,14,17,20,23,26,29-  
 nonakis(trifluoromethyl)-, monoammonium salt (9CI) (CA INDEX NAME)

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● NH<sub>3</sub>

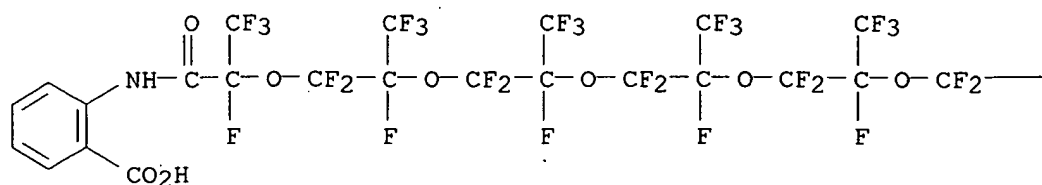
PAGE 1-B



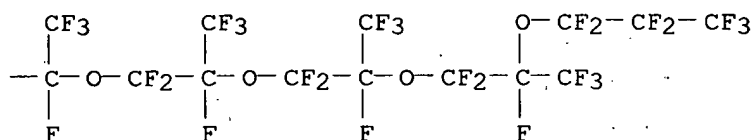
RN 52011-69-5 HCAPLUS

CN Benzoic acid, 2-[[2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,28,28,29,29,30,30,30-dotriacontafluoro-1-oxo-2,5,8,11,14,17,20,23,26-nonakis(trifluoromethyl)-3,6,9,12,15,18,21,24,27-nonaotriacont-1-yl]amino]-, monopotassium salt (9CI) (CA INDEX NAME)





● K



L4 ANSWER 35 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1973:17002 HCAPLUS

DOCUMENT NUMBER: 78:17002

TITLE: Homopolymers of substituted guanamines

INVENTOR(S): Bartlett, Philip Lee

PATENT ASSIGNEE(S): du Pont de Nemours, E. I., and Co.

SOURCE: U.S., 5 pp. Division of U.S. 3,536,710 (CA 74;32284q).

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 3687900	A	19720829	US 1970-51725	19700701
PRIORITY APPLN. INFO.:			US 1970-51725	A 19700701

AB Perfluoropolyoxyalkylguanamines (I, R, R1, R2, R3 = H, CH2OH, n = 1-45) could be heat polymerized on textiles to give dry soil resistant finishes with improved hand or copolymerized with diisocyanates or epoxides to give flexible adhesives. For example, 30 g biguanide sulfate, 30 ml absolute EtOH, 10.9 g NaOMe, and 105 g F[CF(CF3)CF2O]2CF(CF3)CO2Me were refluxed 12 hr and worked up to give 83.4% yield of 2-(perfluoro-5-methyl-3,6-dioxo-2-nonyl)guanamine I(R, R1, R2, R3 = H, n = 2) [28716-20-3] as a colorless waxy solid, which could be mixed with 2,2-bis(2,3-epoxypropoxyphenyl)propane [1675-54-3] (1:1) and used as a metal-metal adhesive, giving crack and water resistant bonds. Nylon fabric treated with I(R, R1, R2, R3 = CH2OH, n = 4) was softer and more resistant to dry soil than that treated with perfluoroalkylguanamine polymers.

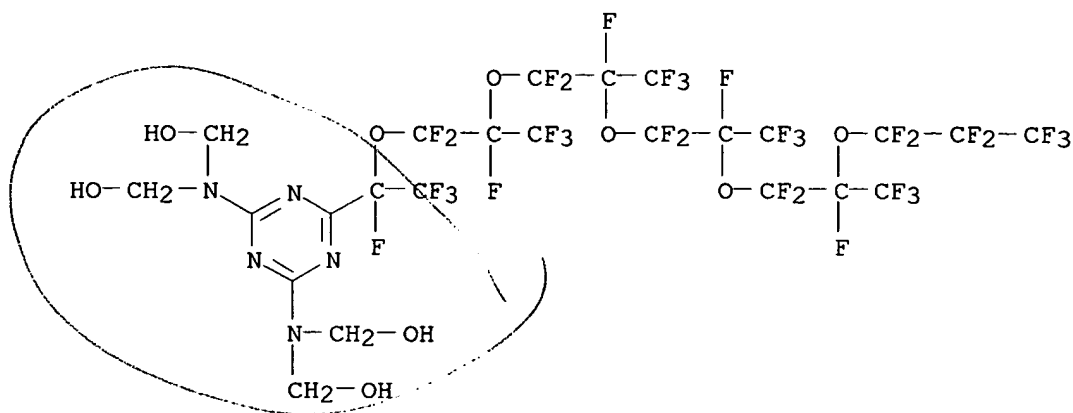
IT 30652-40-5P 33075-69-3P

RL: PREP (Preparation)  
(preparation of)

10813525 PTFE

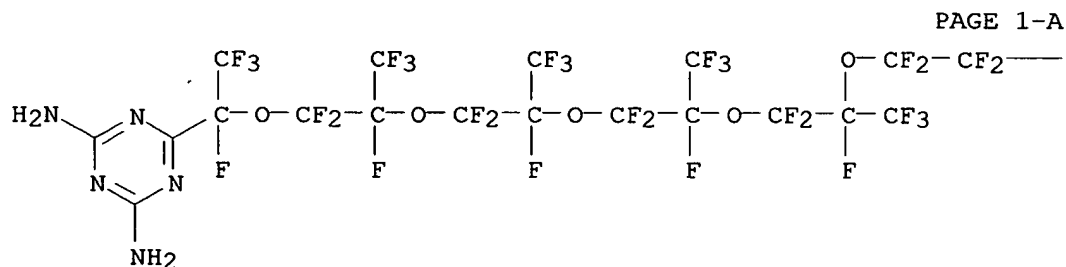
RN 30652-40-5 HCAPLUS

CN Methanol, [[6-[1,3,3,4,6,6,7,9,9,10,12,12,13,15,15,16,16,17,17,17-eicosafuoro-1,4,7,10,13-pentakis(trifluoromethyl)-2,5,8,11,14-penta-oxaheptadec-1-yl]-1,3,5-triazine-2,4-diyl]dinitrilo]tetrakis- (9CI)  
(CA INDEX NAME)



RN 33075-69-3 HCAPLUS

CN 1,3,5-Triazine-2,4-diamine, 6-[1,3,3,4,6,6,7,9,9,10,12,12,13,15,15,16,16,17,17,17-eicosafuoro-1,4,7,10,13-pentakis(trifluoromethyl)-2,5,8,11,14-penta-oxaheptadec-1-yl]- (9CI) (CA INDEX NAME)



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—CF<sub>3</sub>

L4 ANSWER 36 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1972:501574 HCAPLUS

DOCUMENT NUMBER: 77:101574

TITLE: Thermally stable 2-perfluoro-substituted benzothiazoles

INVENTOR(S): Jones, Frank N.; Richardson, Ronald D.

PATENT ASSIGNEE(S): du Pont de Nemours, E. I., and Co.

SOURCE: U.S., 5 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 3666769	A	19720530	US 1969-865204	19691009
PRIORITY APPLN. INFO.:			US 1969-865204	A 19691009

GI For diagram(s), see printed CA Issue.

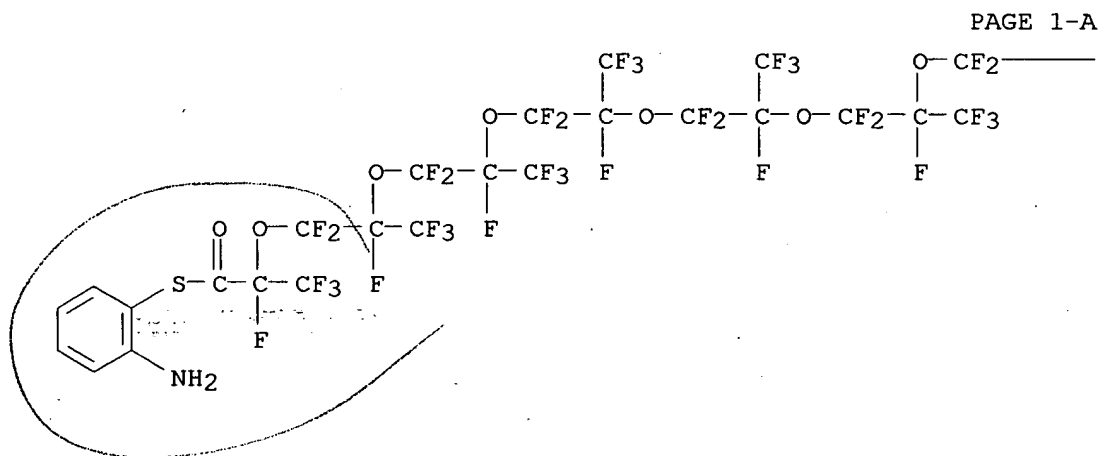
AB The title compds. (I, R = CF<sub>2</sub>CF<sub>2</sub>CF<sub>3</sub>, (CF<sub>2</sub>)<sub>6</sub>CF<sub>3</sub>, CF(CF<sub>3</sub>)(OC<sub>6</sub>F<sub>5</sub>), CF(CF<sub>3</sub>)OCF<sub>2</sub>CF(CF<sub>3</sub>)O(CF<sub>2</sub>)<sub>2</sub>CF<sub>3</sub>, CF(CF<sub>3</sub>)[OCF<sub>2</sub>CF(CF<sub>3</sub>)]<sub>6</sub>F) useful as high-temperature lubricants, hydraulic and power fluids, are prepared by cyclization of the corresponding o-H<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>SCOR, available by esterification of o-H<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>SH (II) by perfluoro acids. Thus, II was treated with BuLi to yield a yellow solid which was treated with F<sub>3</sub>CCF<sub>2</sub>CF<sub>2</sub>COC<sub>1</sub> to yield 67% o-H<sub>2</sub>N-C<sub>6</sub>H<sub>4</sub>SCO(CF<sub>2</sub>)<sub>2</sub>CF<sub>3</sub>; the last was heated at 190° to give 82% I (R = CF<sub>2</sub>CF<sub>2</sub>CF<sub>3</sub>).

IT 36858-71-6P

RL: RCT (Reactant); SPN<sup>+</sup> (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and ring closure of)

RN 36858-71-6 HCAPLUS

CN 3,6,9,12,15,18-Hexaoxaheneicosanethioic acid,  
2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,20,21,21,21-  
tricosafuoro-2,5,8,11,14,17,hexakis(trifluoromethyl)-, S-(2-aminophenyl)  
ester (9CI) (CA INDEX NAME)



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$$-\text{CF}_2-\text{CF}_3$$

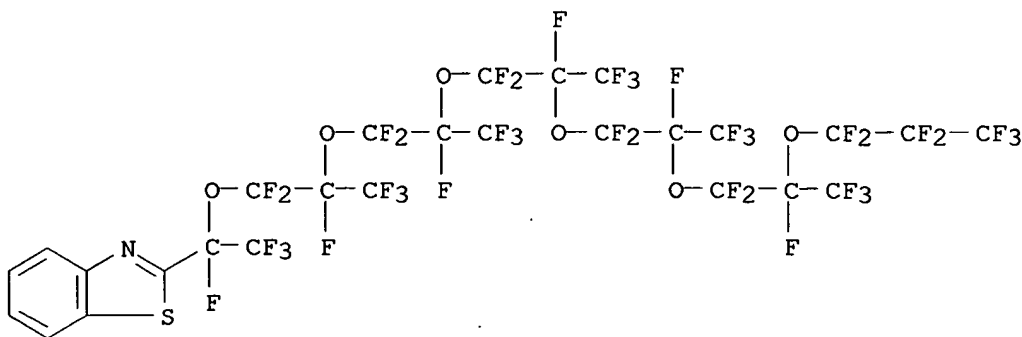
IT 36858-72-7P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

RN 36858-72-7 HCAPLUS

CN Benzothiazole, 2-[1,3,3,4,6,6,7,9,9,10,12,12,13,15,15,16,18,18,19,19,20,20,20-tricosafuoro-1,4,7,10,13,16-hexakis(trifluoromethyl)-2,5,8,11,14,17-

hexaoxaeicos-1-yl]- (9CI) (CA INDEX NAME)



L4 ANSWER 37 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1972:112722 HCAPLUS

DOCUMENT NUMBER: 76:112722

TITLE: Perfluoropoly(ether esters) as lubricants and hydraulic fluids

INVENTOR(S): Sterling, John D., Jr.

PATENT ASSIGNEE(S): du Pont de Nemours, E. I., and Co.

SOURCE: U.S., 3 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

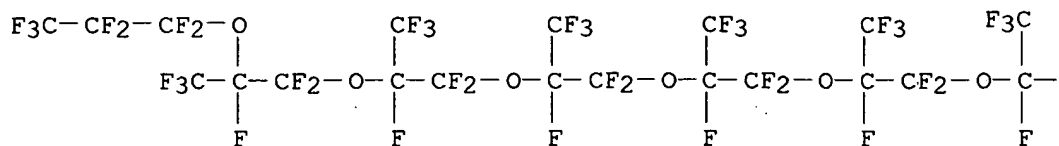
LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

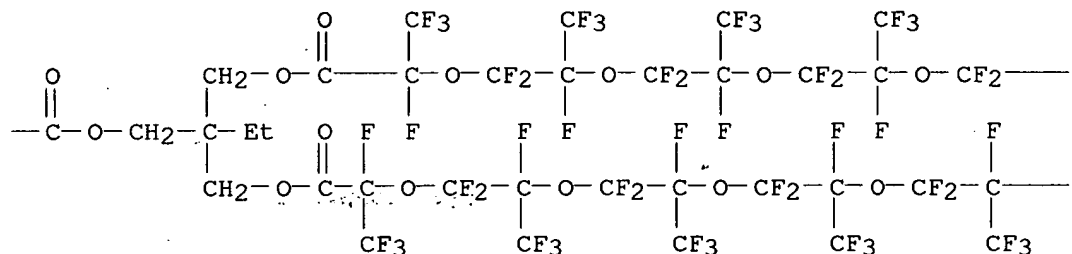
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 3646112	A	19720229	US 1970-5991	19700126
PRIORITY APPLN. INFO.:			US 1970-5991	A 19700126
AB	Reaction of (perfluoroalkoxy)acyl fluorides with (HOCH <sub>2</sub> ) <sub>3</sub> Cet or (HOCH <sub>2</sub> ) <sub>4</sub> C gave the corresponding esters. Thus, reaction of (HOCH <sub>2</sub> ) <sub>3</sub> Cet with CF <sub>3</sub> CF <sub>2</sub> CF <sub>2</sub> O[C(CF <sub>3</sub> )FCF <sub>2</sub> O] <sub>n</sub> C(CF <sub>3</sub> )FCOF (n = 1) gave [CF <sub>3</sub> CF <sub>2</sub> CF <sub>2</sub> O[C(CF <sub>3</sub> )FCF <sub>2</sub> O] <sub>n</sub> C(CF <sub>3</sub> )FCO <sub>2</sub> CH <sub>2</sub> ] <sub>3</sub> Cet. Other examples (8) with n = 1-14 were given.			
IT	34788-22-2P RL: SPN (Synthetic preparation); PREP (Preparation) (preparation of)			
RN	34788-22-2 HCAPLUS			
CN	3,6,9,12,15,18-Hexaoxaheneicosanoic acid, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,20,21,21,21-tricosafuoro-2,5,8,11,14,17-hexakis(trifluoromethyl)-, 2-ethyl-2-[4,6,6,7,9,9,10,12,12,13,15,15,16,18,18,19,21,21,22,22,23,23,23-tricosafuoro-3-oxo-4,7,10,13,16,19-hexakis(trifluoromethyl)-2,5,8,11,14,17,20-heptaoxatricos-1-yl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)			

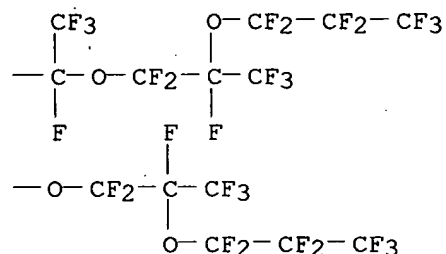
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L4 ANSWER (38 OF 41) HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1971:88385 HCAPLUS

DOCUMENT NUMBER: 74:88385

TITLE: Acrylate-type esters of perfluoropolyoxaalkaneamidoalkyl alcohols, and their polymers which are useful as oil and water repellents and as metal corrosion inhibitors

INVENTOR(S): Bartlett, Philip L.

PATENT ASSIGNEE(S): du Pont de Nemours, E. I., and Co.

SOURCE: U.S., 6 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

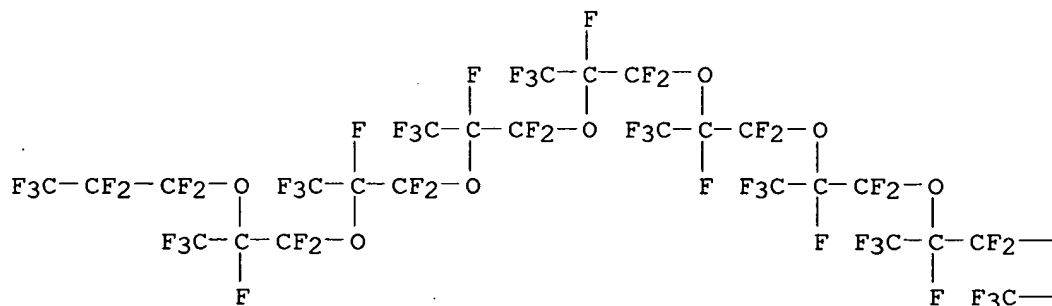
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

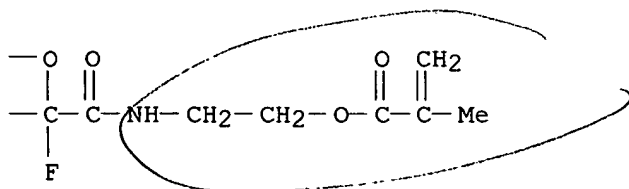
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 3553179 A 19710105 US 1968-727103 19680506  
 PRIORITY APPLN. INFO.: US 1968-727103 A 19680506  
 AB  $\text{CF}_3\text{CF}_2\text{CF}_2\text{O}[\text{CF}(\text{CF}_3)\text{CF}_2\text{O}]_n\text{CF}(\text{CF}_3)\text{CONHCH}_2\text{CH}_2\text{O}_2\text{C cR:CH}_2$  (I) ( $n = 1, 3$ , or  $7$ ,  $R = \text{H}$  or  $\text{Me}$ ) is prepared by ester interchange of  $\text{CF}_3\text{CF}_2\text{CF}_2\text{O}[\text{CF}(\text{CF}_3)\text{CF}_2\text{O}]_n\text{CF}(\text{CF}_3)\text{CONHCH}_2\text{CH}_2\text{OH}$  ( $n = 1, 3$ , or  $7$ ) with  $\text{Me}$  methacrylate or  $\text{Me}$  acrylate, and I is copolymd. with  $\text{Bu}$  acrylate (or lauryl methacrylate and 2-hydroxyethyl methacrylate) and  $N$ -methylolacrylamide in an aqueous emulsion in the presence of azobisisobutyramidine dihydrochloride to prepare polymers that are applied to cotton fabrics (optionally containing polyester fibers) to provide oil and water repellency and applied on steel and  $\text{Al}$  as adhesives and as coatings providing good corrosion resistance.  
 IT 31206-03-8P  
 RL: PREP (Preparation)  
 (preparation of)  
 RN 31206-03-8 HCAPLUS  
 CN Methacrylic acid, ester with 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,26,27,27,27-nonacosafuoro- $N$ -(2-hydroxyethyl)-2,5,8,11,14,17,20,23-octakis(trifluoromethyl)-3,6,9,12,15,18,21,24-octaheptacosanamide (8CI) (CA INDEX NAME)

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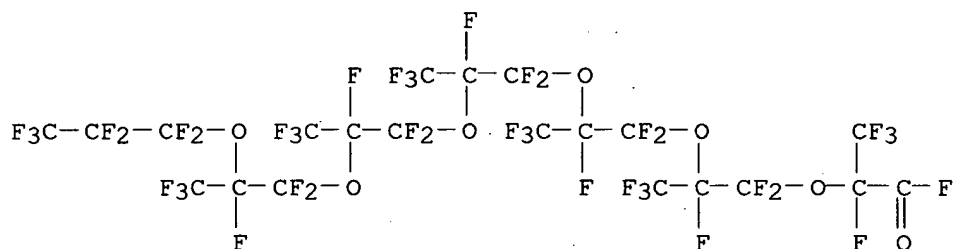
PAGE 1-B



L4 ANSWER 39 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1970:89766 HCAPLUS

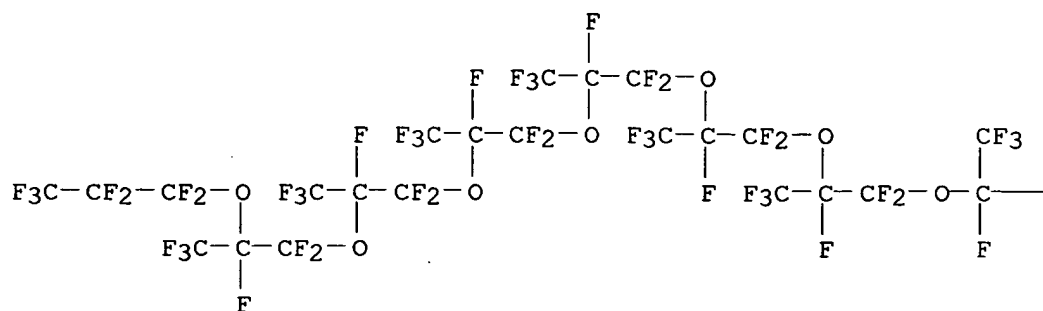
DOCUMENT NUMBER: 72:89766  
 TITLE: Oil repellent polyfluoropolyoxo-alkyl phosphates  
 INVENTOR(S): Le Bleu, Ronald E.; Fassnacht, John H.  
 PATENT ASSIGNEE(S): du Pont de Nemours, E. I., and Co.  
 SOURCE: U.S., 6 pp. Division of U.S. 3293306  
 CODEN: USXXAM  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 3492374	A	19700127	US 1966-535369	19660318
PRIORITY APPLN. INFO.:			US 1966-535369	A 19660318
AB	Division of U.S. 3,293,306 (CA 66: 104686g), the disclosure is the same, but the claims are different.			
IT	13140-24-4P 13140-25-5P 13140-26-6P 13140-27-7P 13140-28-8P 13140-38-0P 13252-15-8P 16950-65-5P 27617-34-1P			
	RL: SPN (Synthetic preparation); PREP (Preparation) (preparation of)			
RN	13140-24-4 HCAPLUS			
CN	3,6,9,12,15,18-Hexaoxaheneicosanoyl fluoride, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,20,21,21,21- tricosafuoro-2,5,8,11,14,17-hexakis(trifluoromethyl)- (7CI, 8CI, 9CI) (CA INDEX NAME)			

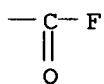


RN 13140-25-5 HCAPLUS  
 CN 3,6,9,12,15,18,21-Heptaoxatetracosanoyl fluoride,  
 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,23,24,24,24-  
 hexacosafuoro-2,5,8,11,14,17,20-heptakis(trifluoromethyl)- (7CI, 8CI,  
 9CI) (CA INDEX NAME)

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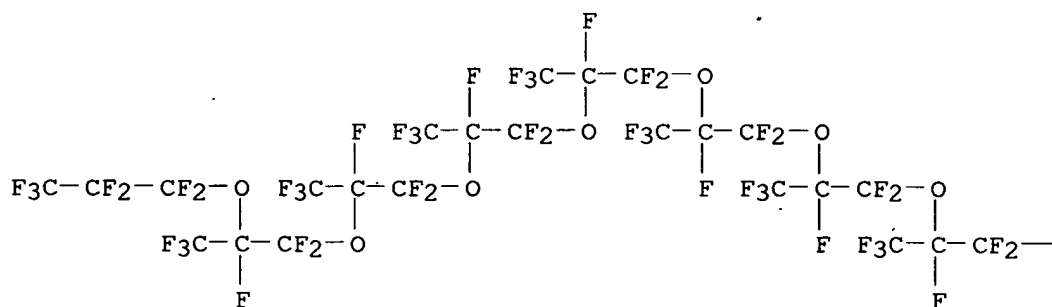
PAGE 1-B



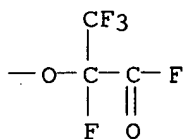
RN 13140-26-6 HCAPLUS

CN 3,6,9,12,15,18,21,24-Octaoxaheptacosanoyl fluoride,  
 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,26,27,  
 27,27-nonacosafuoro-2,5,8,11,14,17,20,23-octakis(trifluoromethyl)- (7CI,  
 8CI, 9CI) (CA INDEX NAME)

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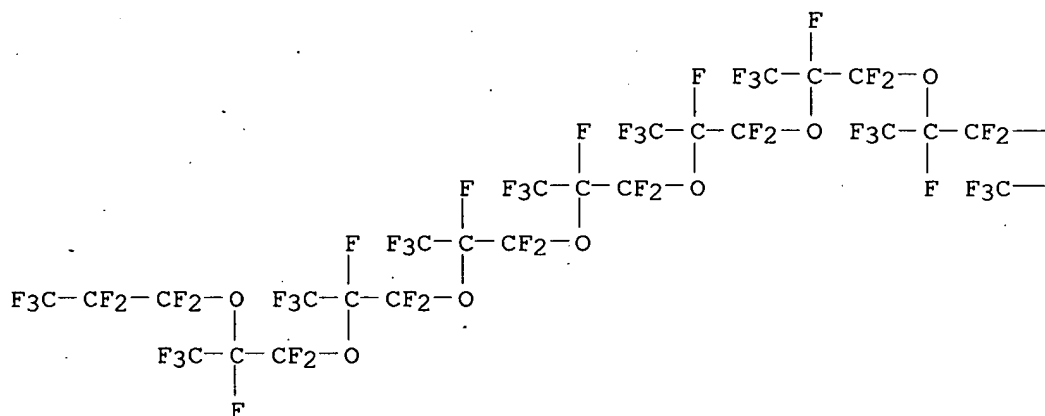




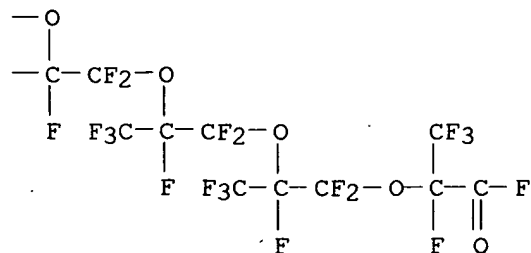
RN 13140-27-7 HCAPLUS

CN 3,6,9,12,15,18,21,24,27,30,33-Undeca-oxahexatriacontanoyl fluoride,  
2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,28,28,  
29,31,31,32,34,34,35,35,36,36,36-octatriacontafluoro-  
2,5,8,11,14,17,20,23,26,29,32-undecakis(trifluoromethyl)- (7CI, 8CI) (CA  
INDEX-NAME)

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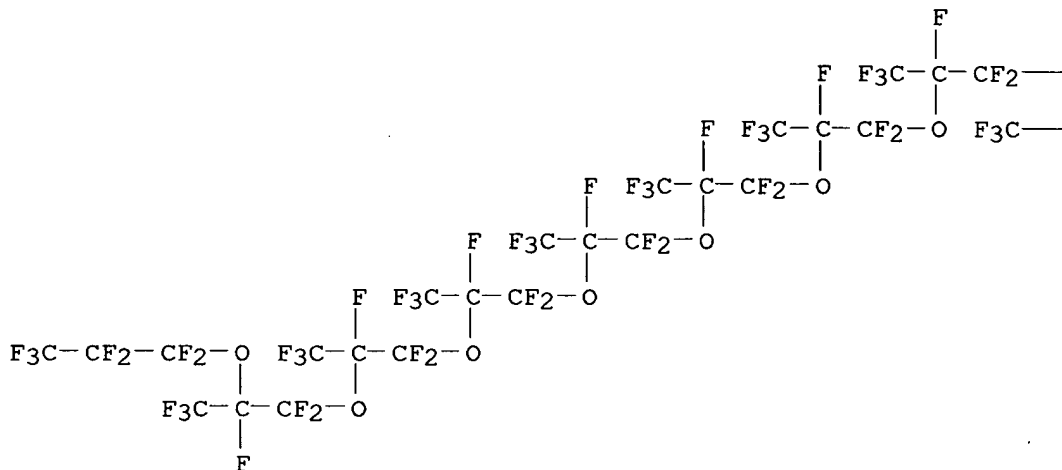
PAGE 1-B



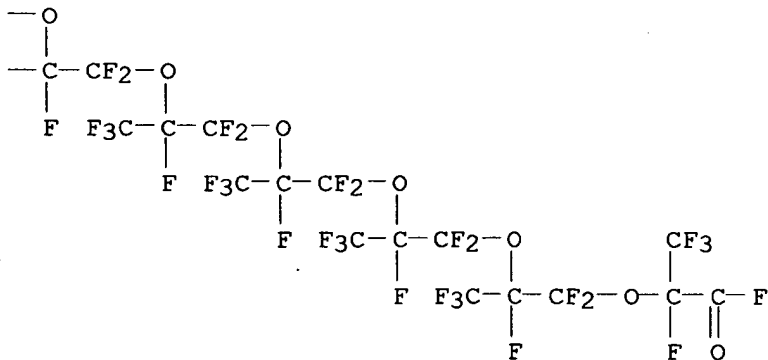
RN 13140-28-8 HCAPLUS

CN 3,6,9,12,15,18,21,24,27,30,33,36,39-Tridecaoxadotetracontanoyl fluoride,  
2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,28,28,  
29,31,31,32,34,34,35,37,37,38,40,40,41,41,42,42,42-tetratetracontafluoro-  
2,5,8,11,14,17,20,23,26,29,32,35,38-tridecakis(trifluoromethyl)- (7CI,  
8CI, 9CI) (CA INDEX NAME)

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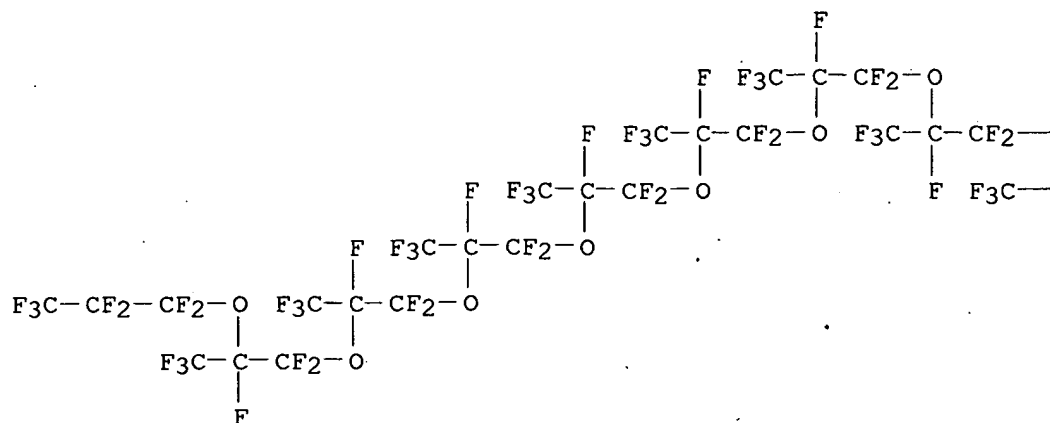
PAGE 1-B



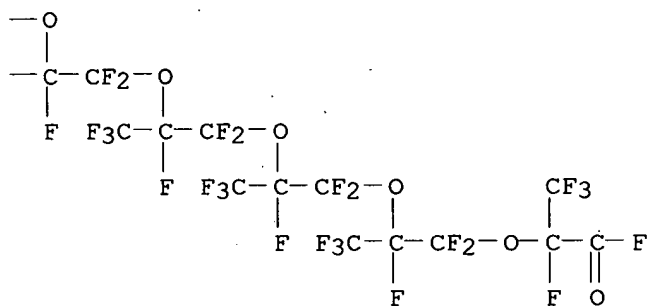
RN 13140-38-0 HCAPLUS

CN 3,6,9,12,15,18,21,24,27,30,33,36-Dodecaoxanonatriacontanoyl fluoride,  
2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,28,28,  
29,31,31,32,34,34,35,37,37,38,38,39,39,39-hentetracontafluoro-  
2,5,8,11,14,17,20,23,26,29,32,35-dodecakis(trifluoromethyl)- (7CI, 8CI)  
(CA INDEX NAME)

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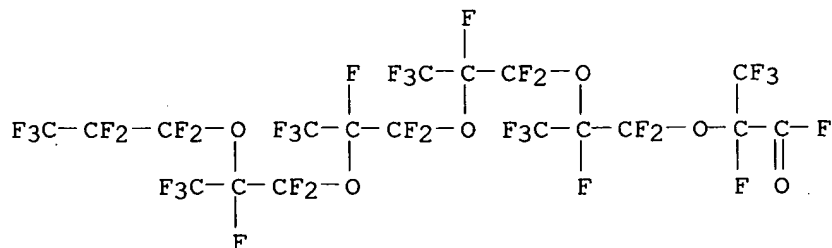


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RN 13252-15-8 HCAPLUS

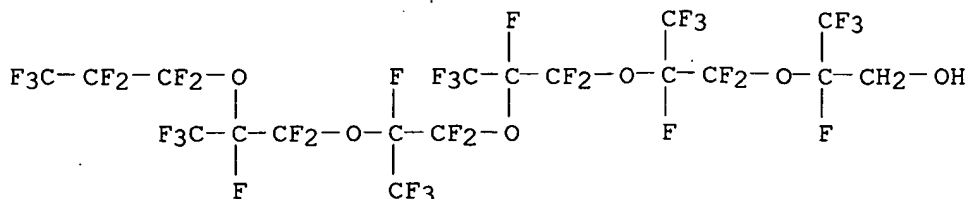
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RN 16950-65-5 HCAPLUS

[illegible][illegible]

CN 3,6,9,12,15-Pentaoxaoctadecan-1-ol, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,17,18,18,18-eicosafluoro-2,5,8,11,14-pentakis(trifluoromethyl)- (8CI, 9CI) (CA INDEX NAME)



L4 ANSWER 40 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1966:472960 HCAPLUS

DOCUMENT NUMBER: 65:72960

ORIGINAL REFERENCE NO.: 65:13554b-e

TITLE: Fluorocarbon ethers from hexafluoropropylene oxide

INVENTOR(S): Moore, Earl P.; Milian, Alwin S., Jr.; Eleuterio, Herbert S.

PATENT ASSIGNEE(S): E. I. du Pont de Nemours &amp; Co.

SOURCE: 6 pp.

DOCUMENT TYPE: Patent

LANGUAGE: Unavailable

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 3250808		19660510	US 1963-320549	19591209
PRIORITY APPLN. INFO.:			US	19591209

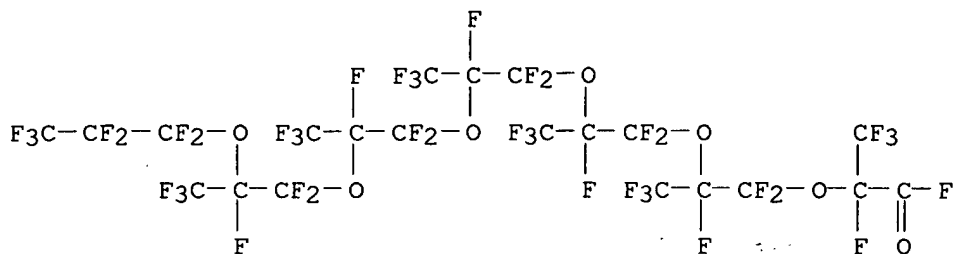
AB cf. preceding abstract. Title compds. (I) were prepared for use as wide-temperature-range lubricants and hydraulic fluids, their salts as surfactants, and their esters as solvents and heat transfer media. In addition, the metal salts can be decarboxylated to give vinyl ethers or I decomposed to form perfluoropropionyl fluoride, a valuable intermediate. Thus, 25 g. hexafluoropropylene oxide (II) in a glass tube was cooled to  $-55^\circ$  and irradiated by a Van de Graft generator beam for 2 5-min. periods at 2 Mev. and 125  $\mu$  amps. and then for 3 5-min. periods at 2 Mev. and 250  $\mu$  amps. Yield was 4.7 g. polymer of II. CsF (11.6 g.) and 20 ml. diethylene glycol dimethyl ether was cooled in a bomb to  $-80^\circ$  and evacuated, and 60 g. perfluoroisobutyryl fluoride and 43 g. II were added. The mixture was heated to  $100^\circ$  for 4 hrs. to yield 10 g. perfluoro-2-isobutoxypropionyl fluoride (III), b.  $76-8^\circ$ . III was converted by H<sub>2</sub>O hydrolysis to a strong fluorocarbon carboxylic acid and neutralized with 10N KOH to form the K salt. II (14g.) and 1 g. activated C were charged to a Pt tube at  $-78^\circ$ . After 48 hrs. at  $-15^\circ$ , there was recovered 12.2 g. polymer of II. Similarly was prepared perfluoro-2-propoxypropionyl fluoride (IV), b.  $55-7^\circ$ . The IV was treated with methanol to yield methyl perfluoro-2-propoxypropionate, b.  $109-10^\circ$ ; with ice and NH<sub>4</sub>OH solution to yield perfluoro-2-propoxypropionamide, m.  $58^\circ$ ; with dodecafluorodimethylcyclobutane and H<sub>2</sub>O and distillation to yield the acid analog of IV, b.  $143-4.5^\circ$ , which was a highly active dispersing agent as were its Li and Na salts. Also prepared were: 3,6-dioxa-2,4-bis(trifluoromethyl)nonafluorooctanoyl fluoride, b.  $96^\circ$ , and its NH<sub>4</sub><sup>+</sup> salt by treatment with NH<sub>3</sub> in ether solution; perfluoro-2-methoxypropionyl fluoride, b.  $10-12^\circ$ ; and, perfluoro-2-ethoxypropionyl fluoride, b.  $30-3^\circ$ . Reaction of II with

hexafluoroacetone yielded perfluoro-2-isopropoxypropionyl fluoride, b. 57°, which was dehalocarbonylated by passage through a bed of dry K<sub>2</sub>SO<sub>4</sub> pellets at 300° for 10 min. yielding perfluoroisopropyl perfluorovinyl ether, b. 35°, while reaction of II with perfluoro-2-pentanone yielded a 1:1 adduct, b. 114-17°.

IT 13140-24-4P, Propionyl fluoride, 2,3,3,3-tetrafluoro-2-[1,1,2,3,3,3-hexafluoro-2-[1,1,2,3,3,3-hexafluoro-2-[1,1,2,3,3,3-hexafluoro-2-[1,1,2,3,3,3-hexafluoro-2-(heptafluoropropoxy)propoxy]propoxy]propoxy]propoxy]propoxy]-13140-25-5P, Propionyl fluoride, 2,3,3,3-tetrafluoro-2-[1,1,2,3,3,3-hexafluoro-2-[1,1,2,3,3,3-hexafluoro-2-[1,1,2,3,3,3-hexafluoro-2-[1,1,2,3,3,3-hexafluoro-2-(heptafluoropropoxy)propoxy]propoxy]propoxy]propoxy]propoxy]-13140-26-6P, 3,6,9,12,15,18,21,24-Octaoxaheptacosanoyl fluoride, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,26,26,27,27,27-nonacosafuoro-2,5,8,11,14,17,20,23-octakis(trifluoromethyl)-13140-27-7P, Propionyl fluoride, 2,3,3,3-tetrafluoro-2-[1,1,2,3,3,3-hexafluoro-2-[1,1,2,3,3,3-hexafluoro-2-[1,1,2,3,3,3-hexafluoro-2-[1,1,2,3,3,3-hexafluoro-2-[1,1,2,3,3,3-hexafluoro-2-[1,1,2,3,3,3-hexafluoro-2-(heptafluoropropoxy)propoxy]propoxy]propoxy]propoxy]propoxy]propoxy]propoxy]-13140-28-8P, 3,6,9,12,15,18,21,24,27,30,33,36,39-Tridecaoxadotetracontanoyl fluoride, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,26,28,28,29,31,31,32,34,34,35,37,37,38,40,40,41,41,42,42,42-tetratetracontafuoro-2,5,8,11,14,17,20,23,26,29,32,35,38-tridecakis(trifluoro-methyl)-13140-38-0P, Propionyl fluoride, 2,3,3,3-tetrafluoro-2-[1,1,2,3,3,3-hexafluoro-2-[1,1,2,3,3,3-hexafluoro-2-[1,1,2,3,3,3-hexafluoro-2-[1,1,2,3,3,3-hexafluoro-2-[1,1,2,3,3,3-hexafluoro-2-[1,1,2,3,3,3-hexafluoro-2-(heptafluoropropoxy)propoxy]propoxy]propoxy]propoxy]propoxy]propoxy]-13252-15-8P, 3,6,9,12,15-Pentaoxaoctadecanoyl fluoride, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,17,18,18,18-eicosafluoro-2,5,8,11,14-pentakis (trifluoromethyl)-16950-65-5P, Propionyl fluoride, 2,3,3,3-tetrafluoro-2-[1,1,2,3,3,3-hexafluoro-2-[1,1,2,3,3,3-hexafluoro-2-[1,1,2,3,3,3-hexafluoro-2-[1,1,2,3,3,3-hexafluoro-2-[1,1,2,3,3,3-hexafluoro-2-[1,1,2,3,3,3-hexafluoro-2-(heptafluoropropoxy)propoxy]propoxy]propoxy]propoxy]propoxy]propoxy]-RL: PREP (Preparation) (preparation of)

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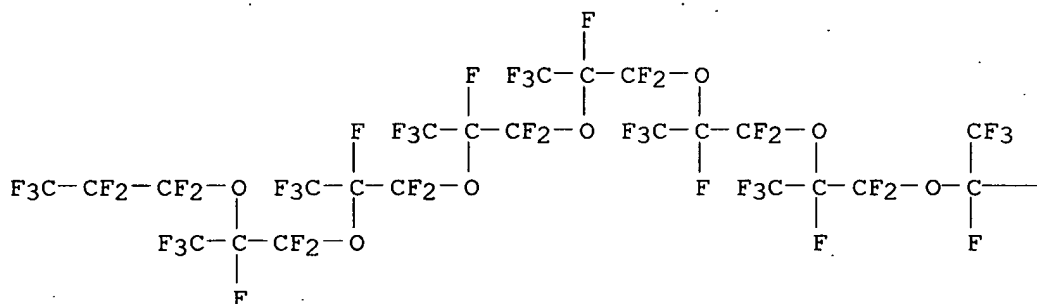
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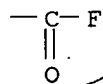
RN 13140-25-5 HCAPLUS

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 9CI) (CA INDEX NAME)

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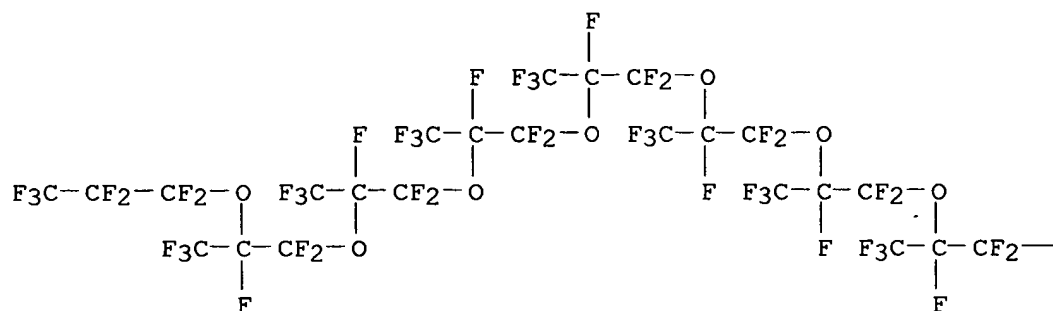
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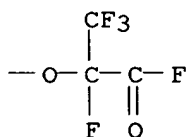
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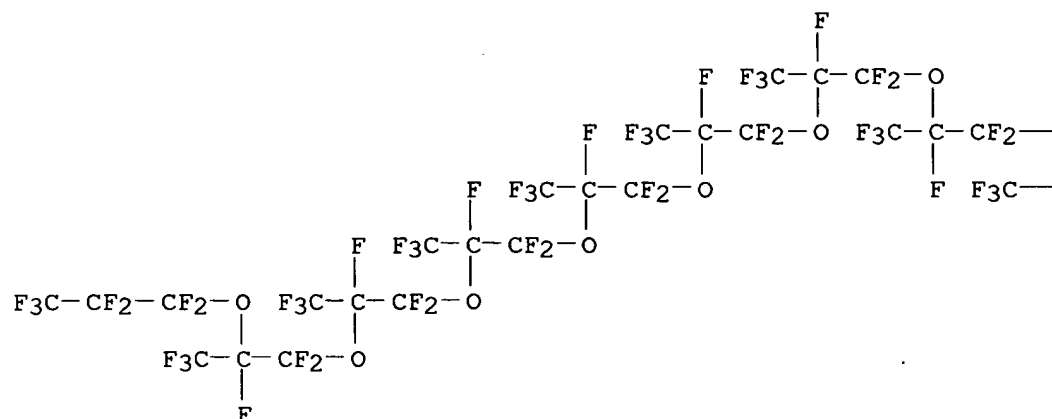
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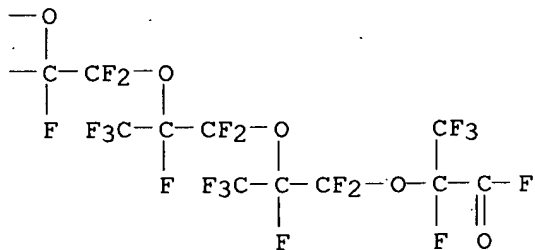
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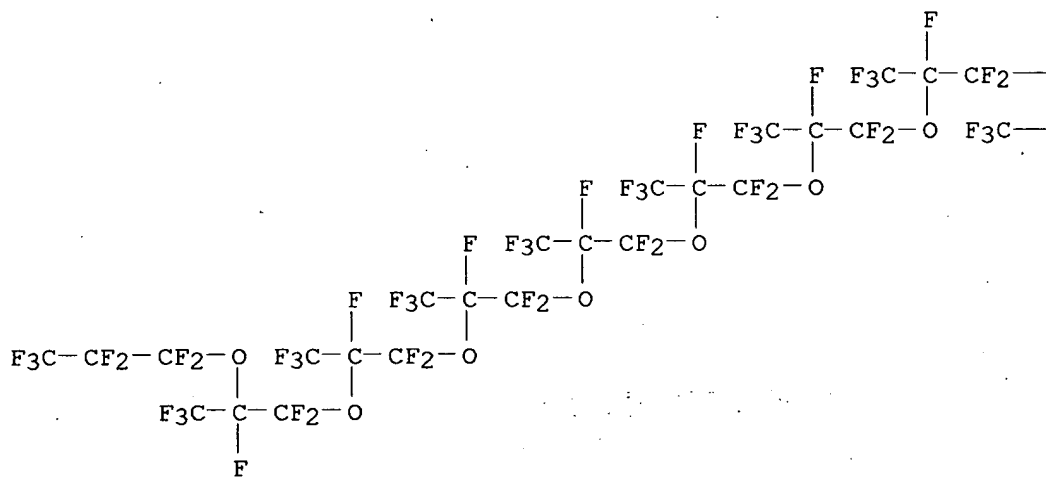


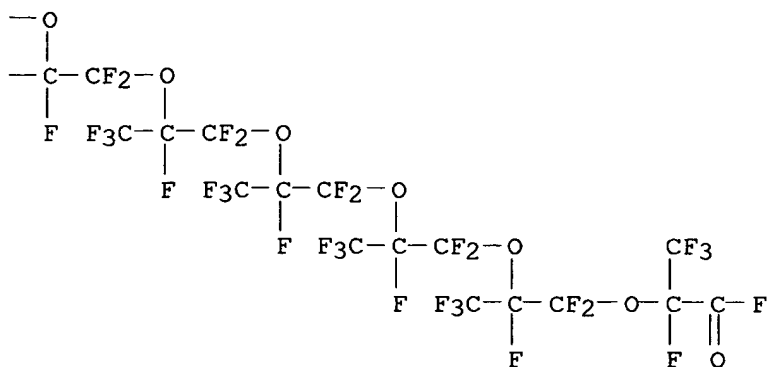




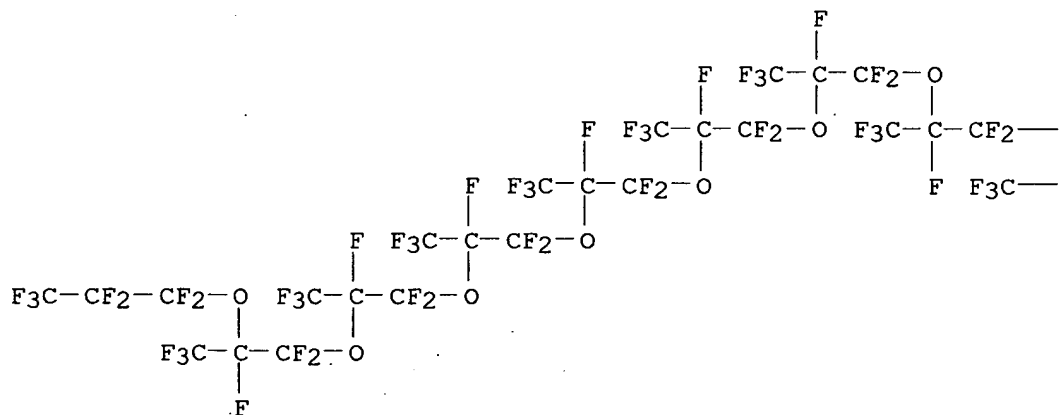
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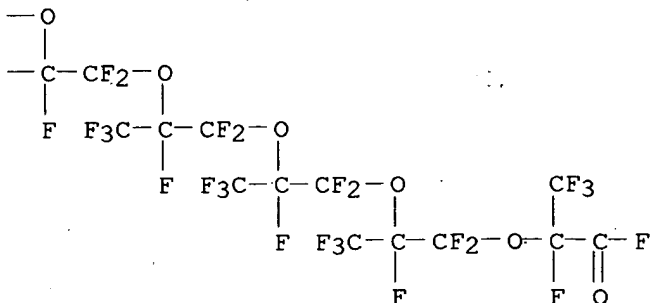
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 29,31,31,32,34,34,35,37,37,38,40,40,41,41,42,42,42-tetratetracontafluoro-  
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 8CI, 9CI) (CA INDEX NAME)



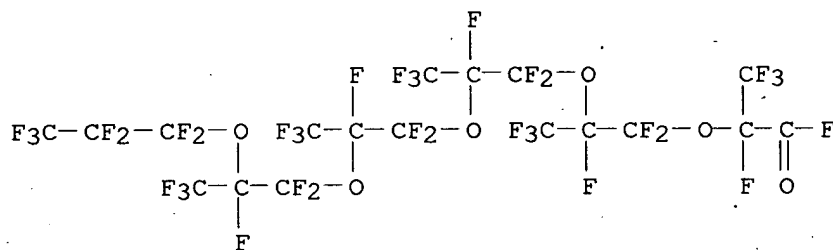


RN 13140-38-0 HCAPLUS  
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 29,31,31,32,34,34,35,37,37,38,38,39,39,39-hentetracontafluoro-  
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 (CA INDEX NAME)



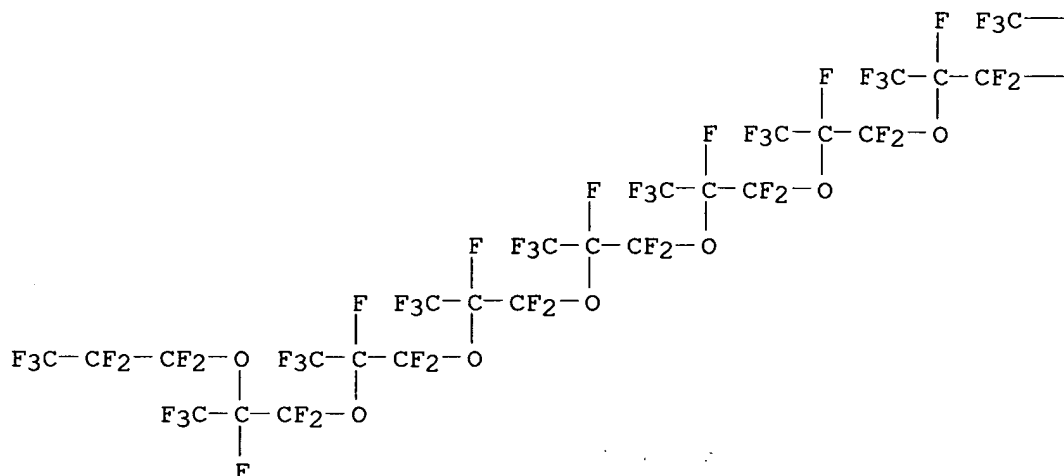


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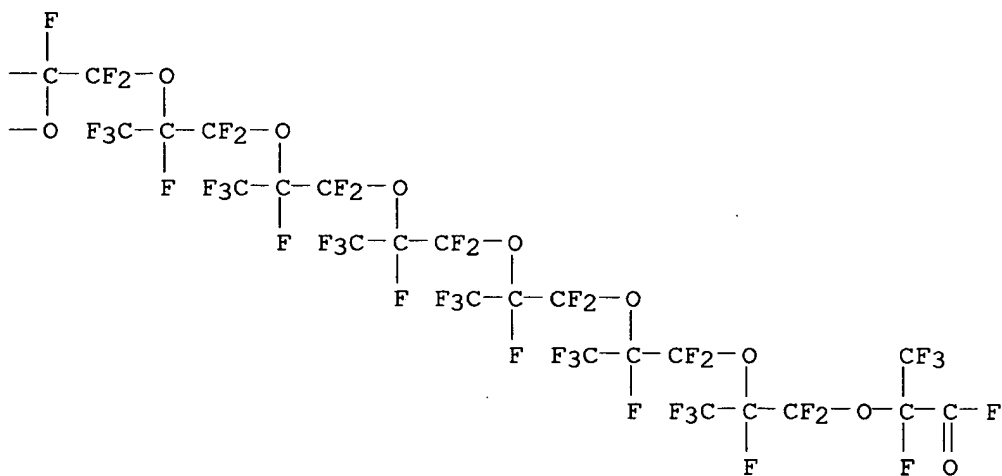


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pentadecakis(trifluoromethyl)- (7CI, 8CI, 9CI) (CA INDEX NAME)

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L4 ANSWER 41 OF 41 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1966:472959 HCAPLUS

DOCUMENT NUMBER: 65:72959

ORIGINAL REFERENCE NO.: 65:13553g-h, 13554a-b

TITLE: Dicarboxylic acids of fluorocarbon ethers and  
fluorides and their esters, amides, and salts

INVENTOR(S): Fritz, Charles G.; Moore, Earl P.

PATENT ASSIGNEE(S): E. I. du Pont de Nemours &amp; Co.

SOURCE: 3 pp.

DOCUMENT TYPE: Patent

LANGUAGE: Unavailable

FAMILY ACC. NUM. COUNT: 1

## PATENT INFORMATION:

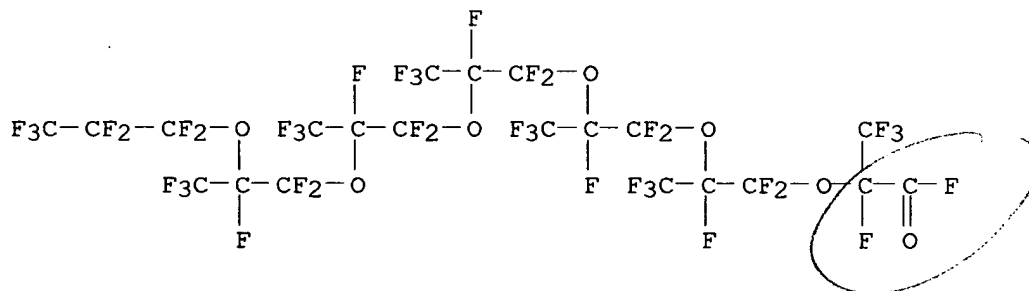
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	US 3250807		19660510	US 1963-304259	19611219
PRIORITY APPLN. INFO.:			US		19611219
AB	cf. following abstract Title fluorides and ethers, prepared by the reaction of diacid difluorides with hexafluoropropylene oxide (I), and their esters and amides can be used as heat-transfer media and lubricants. Ammonium salts can be used as stable dispersing agents. Thus, 9 g. CsF, 90 ml. diethylene glycol dimethyl ether, and 73 g. perfluoroglutaryl fluoride was cooled with rapid agitation while adding 120 g. I to maintain 5 psig. Work-up produced 80% perfluoro-2,10-dimethyl-3,9-dioxaundecanedioyl fluoride (II), b. 156-8°. The disodium salt of the corresponding acid was prepared by H <sub>2</sub> O hydrolysis and neutralization of the solution with NaOH. I (18 g.), 4.3 g. oxalyl fluoride, and 1 g. activated C was charged to a 20-ml. stainless steel cylinder and allowed to stand at room temperature for 22 hrs. to yield 2.4 g. perfluoro-2,7-dimethyl-3,6-dioxaoctanedioyl fluoride, b. 98-100°. Similarly were prepared FOC(CF <sub>2</sub> ) <sub>3</sub> OCF(CF <sub>3</sub> )COF and FOCCF(CF <sub>3</sub> )O(CF <sub>2</sub> ) <sub>3</sub> OCF(CF <sub>3</sub> )COF; FOCCF(CF <sub>3</sub> )O[CF <sub>2</sub> CF(CF <sub>3</sub> )O] <sub>m</sub> (CF <sub>2</sub> ) <sub>5</sub> [OCF(CF <sub>3</sub> )CF <sub>2</sub> ]pOCF(CF <sub>3</sub> )COF, where m + p = average 3, mol. weight 1074, and the corresponding di-Me ester; FOCCF <sub>2</sub> OC(CF <sub>3</sub> )COF, b. .apprx.50°, and FOCCF(CF <sub>3</sub> )O(CF <sub>2</sub> ) <sub>2</sub> OCF(CF <sub>3</sub> )COF, b. 98-101°; FOC(CF <sub>2</sub> ) <sub>4</sub> OC(CF <sub>3</sub> )COF and FOCCF(CF <sub>3</sub> )O(CF <sub>2</sub> ) <sub>5</sub> OCF(CF <sub>3</sub> )COF. Cf. following abstract				
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y]propoxy]propoxy]propoxy]propoxy]- 13252-15-8P, Propionyl  
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(preparation of)

RN 13140-24-4 HCAPLUS

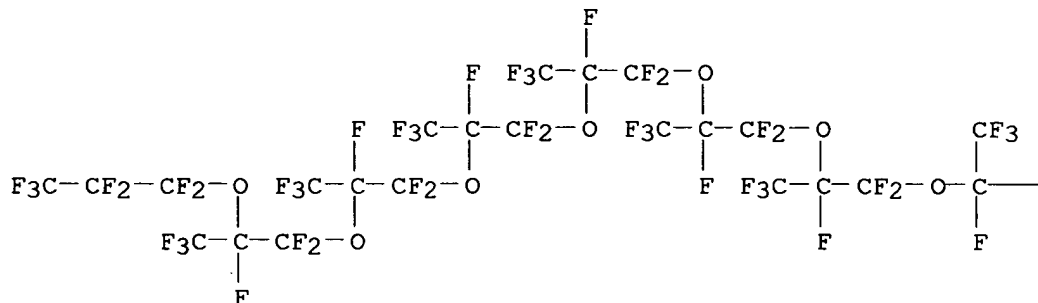
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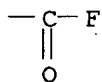


RN 13140-25-5 HCAPLUS

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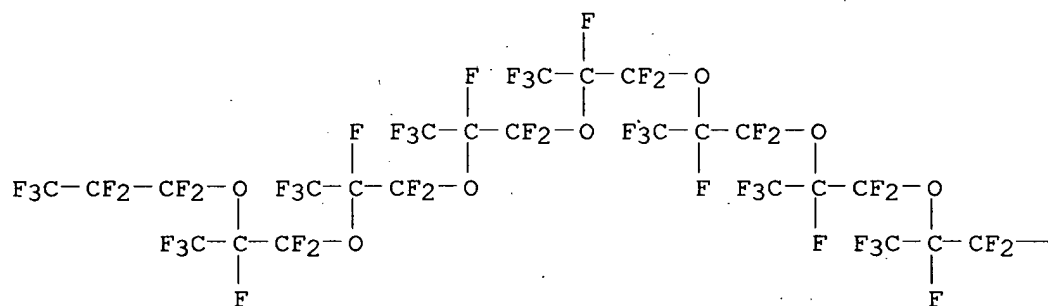
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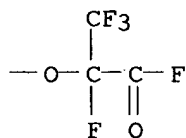


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	27,27-nonacosafluoro-2,5,8,11,14,17,20,23-octakis(trifluoromethyl)- (7CI,	
	8CI, 9CI) (CA INDEX NAME)	

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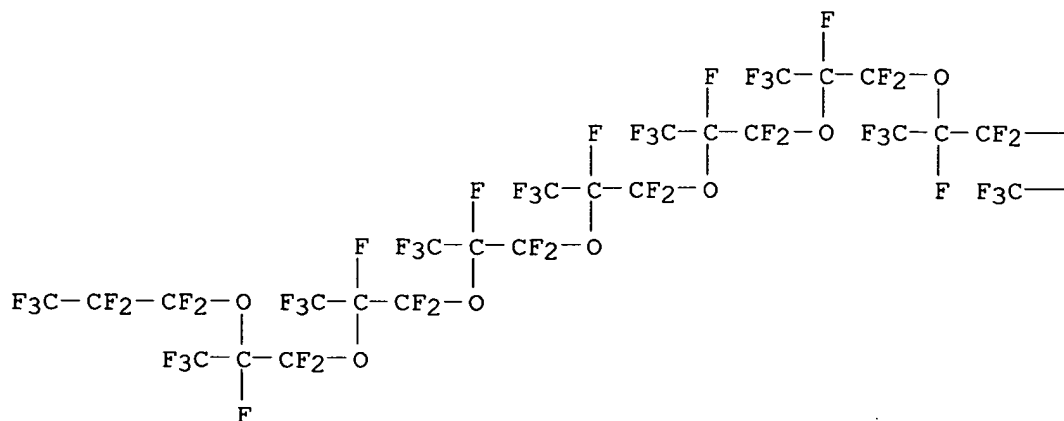


PAGE 1-B

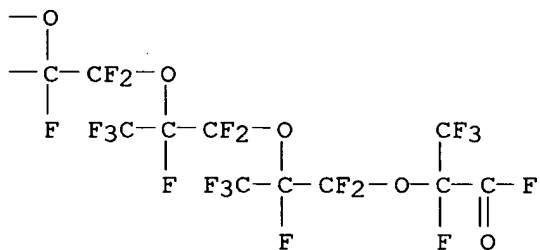


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PAGE 1-A



PAGE 1-B

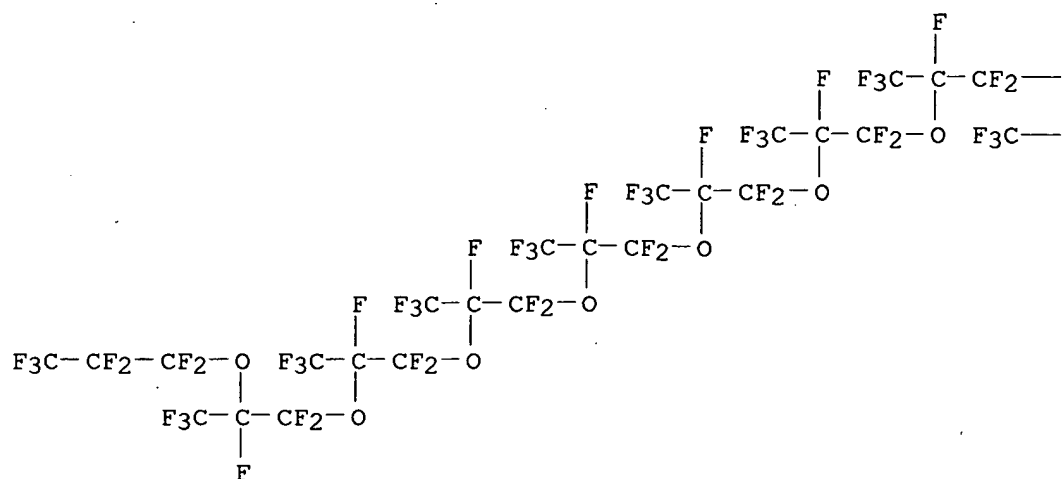


RN 13140-28-8 HCAPLUS

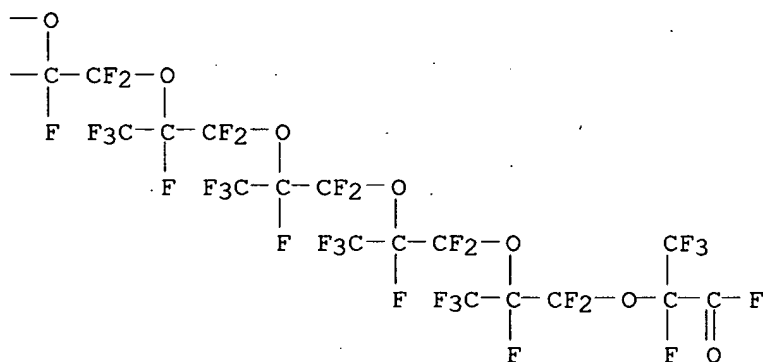
CN 3,6,9,12,15,18,21,24,27,30,33,36,39-Tridecaoxadotetracontanoyl fluoride,  
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 29,31,31,32,34,34,35,37,37,38,40,40,41,41,42,42,42-tetratetracontafluoro-  
 2,5,8,11,14,17,20,23,26,29,32,35,38-tridecakis(trifluoromethyl)- (7CI,  
 8CI, 9CI) (CA INDEX NAME)



PAGE 1-A



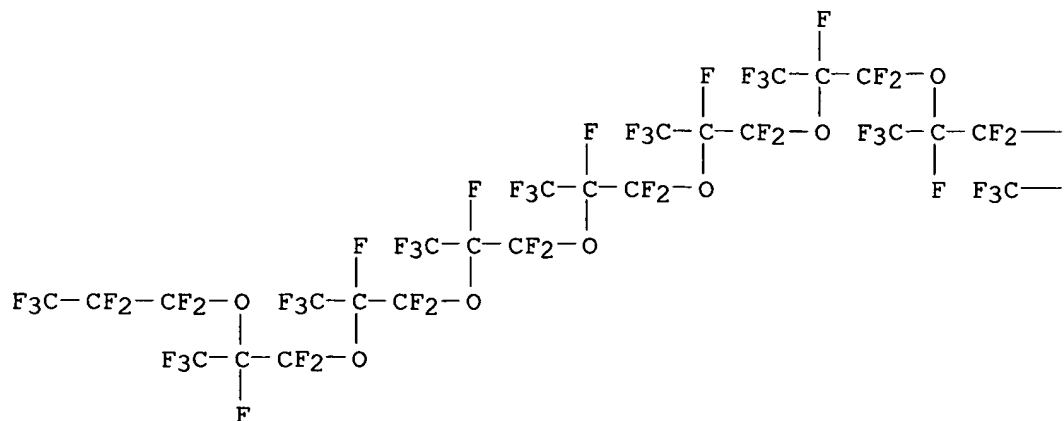
PAGE 1-B



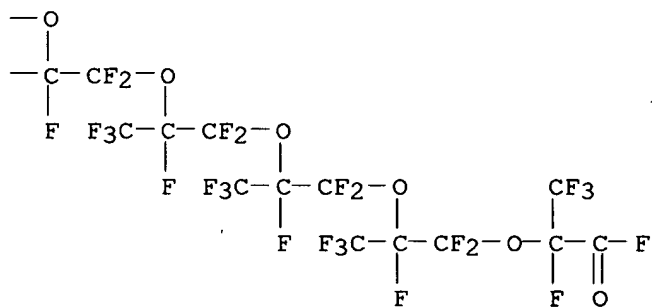
RN 13140-38-0 HCAPLUS

CN	3,6,9,12,15,18,21,24,27,30,33,36-Dodecaoxanonatriacontanoyl fluoride, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,19,19,20,22,22,23,25,25,26,28,28, 29,31,31,32,34,34,35,37,37,38,38,39,39,39-hentetracontafluoro- 2,5,8,11,14,17,20,23,26,29,32,35-dodecakis(trifluoromethyl)- (7CI, 8CI) (CA INDEX NAME)
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PAGE 1-A

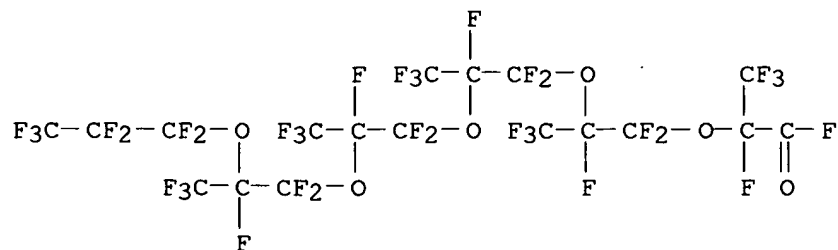


PAGE 1-B



RN 13252-15-8 HCAPLUS

CN - 3,6,9,12,15-Pentaoxaoctadecanoyl fluoride, 2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,17,18,18,18-eicosafluoro-2,5,8,11,14-pentakis(trifluoromethyl)-(7CI, 8CI, 9CI) (CA INDEX NAME)



RN 16950-65-5 HCAPLUS

$$\begin{array}{ccccccc}
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 & & & & & | & \\
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 & & & F & | & F_3C-C-CF_2-O- & \\
 & & F & | & F_3C-C-CF_2-O- & | & \\
 & F_3C-CF_2-CF_2-O- & F_3C-C-CF_2-O- & | & F_3C-C-CF_2-O- & | & \\
 & & F_3C-C-CF_2-O- & | & F_3C-C-CF_2-O- & | & \\
 & & & F & & & 
 \end{array}$$
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L2 8 S L1 SSS SAM  
L3 164 S L1 SSS FULL

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L4 41 S L3/PREP

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10/8/3525  
11/25/2007  
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=> s perfluoropolyether/pe  
'PE' IS NOT A VALID FIELD CODE  
L2 0 PERFLUOROPOLYETHER/PE

	SINCE FILE	TOTAL
	ENTRY	SESSION
=> fil caplus		
COST IN U.S. DOLLARS		
FULL ESTIMATED COST	5.85	6.06

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L3 1988 PERFLUOROPOLYETHER

=> s l3 and PFPE  
604 PFPE  
L4 435 L3 AND PFPE

=> s l4 and synthesis  
1291018 SYNTHESIS  
L5 36 L4 AND SYNTHESIS

=> 1-36 bib abs  
1-36 IS NOT A RECOGNIZED COMMAND  
The previous command name entered was not recognized by the system. For a list of commands available to you in the current file, enter "HELP COMMANDS" at an arrow prompt (=>).

=> d 1-36 bib abs

L5 ANSWER 1 OF 36 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 2006:471656 CAPLUS  
DN 145:146291  
TI Transparent Perfluoropolyethers for Vacuum Ultraviolet Applications

AU Bassi, Mattia; Guarda, Pier-Antonio; Pagano, Elvira; Sanguineti, Aldo; Marchionni, Giuseppe  
CS Solvay-Solexis R&D Center, Bollate, Milan, I-20021, Italy  
SO Journal of Physical Chemistry B (2006), 110(24), 12172-12178  
CODEN: JPCBFK; ISSN: 1520-6106  
PB American Chemical Society  
DT Journal  
LA English  
AB After a broad scouting based on quantum chemical calcns., optical absorption measurements in the vacuum UV (VUV) wavelength region between 140 and 190 nm were performed on a narrower series of com. and exptl. liqs. By elimination of sources of external contamination, mainly due to atmospheric gases, the anal. of the contributions to the absorption related to the backbone structure and to the chain end composition allowed the synthesis of a novel family of linear perfluoropolyethers (PFPEs) with optical absorbance at 157 nm between 0.3 and 0.6 cm<sup>-1</sup> in a broad range of compns. and mol. wts. The dependence of the optical threshold on the PFPE composition demonstrates that -OCF<sub>2</sub>- is the most transparent segmental unit in the VUV region.

RE.CNT 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 2 OF 36 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 2006:247222 CAPLUS  
TI Environmentally-friendly fabrication of polymeric and organic nanomaterials for bionanotechnology and materials science using Particle Replication in Non-wetting Templates (PRINT)  
AU Euliss, Larken E.; DeSimone, Joseph M.  
CS Department of Chemistry, University of North Carolina at Chapel Hill, Chapel Hill, NC, 27599, USA  
SO Abstracts of Papers, 231st ACS National Meeting, Atlanta, GA, United States, March 26-30, 2006 (2006), IEC-211 Publisher: American Chemical Society, Washington, D. C.  
CODEN: 69HYEC  
DT Conference; Meeting Abstract; (computer optical disk)  
LA English  
AB We have developed a scalable, "top-down" imprint lithog.-based methodol. for the fabrication of polymeric and organic nanostructures for nanomedicine and materials science applications. This technique, called Particle Replication In Non-wetting Templates (PRINT), uses novel perfluoropolyether (PFPE) elastomers that possess superior nanoimprinting properties, including error-free nanoscale shape replication of microfabricated, self-assembled, inorg., and biol. materials. PRINT combines the robust processing capabilities of the microelectronics industry with the flexibility and sophistication of traditional polymer and biomaterials synthesis methods to produce unique nanomaterials. Using PRINT, we have successfully fabricated nano- and micro-particles containing biocompatible matrixes (i.e. poly ethylene glycol (PEG) and poly L-lactic acid (PLLA)) containing a variety of bioactive compds. (i.e. proteins, imaging agents and pertinent chemotherapeutics). The PRINT particles also are equipped with latent linker groups to facilitate specific cellular targeting. In order to scale the PRINT process up to technol. relevant levels, we have developed a variety of processing methodologies such as large-area fabrication and adhesive harvesting methods. Finally, we are beginning to use nanobiomaterials fabricated utilizing the PRINT process for in vitro and in vivo studies. This work offers versatility to the state of the art' and is the first example of micro-fabricated delivery vehicles for intracellular nanomedicine.

L5 ANSWER 3 OF 36 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 2006:227764 CAPLUS  
DN 144:469714  
TI Contact Angle Analysis, Surface Dynamics, and Biofouling Characteristics

of Cross-Linkable, Random Perfluoropolyether-Based Graft  
Terpolymers

AU Yarbrough, Jason C.; Rolland, Jason P.; DeSimone, Joseph M.; Callow,  
Maureen E.; Finlay, John A.; Callow, James A.  
CS Department of Chemistry, University of North Carolina at Chapel Hill,  
Chapel Hill, NC, 27599, USA

SO Macromolecules (2006), 39(7), 2521-2528  
CODEN: MAMOBX; ISSN: 0024-9297

PB American Chemical Society

DT Journal

LA English

AB The conventional approach to prevention of marine biofouling has been the use of antifouling paints and coatings which function through the release of toxins in the immediate vicinity of the ship. Such technol., while admittedly effective, has proven to be responsible for an alarming increase in the levels of organotin and other toxic materials in and around dry docks, harbors, and shipping lanes which experience significant com. and tourist traffic. Therefore, our objective is the rational design of minimally adhesive, mech. stable, nontoxic fouling release coatings as responsible and practical alternatives to antifouling technologies. Herein we report on the synthesis and characterization of a series of cross-linkable perfluoropolyether (PFPE) graft terpolymers containing various alkyl (meth)acrylate monomers with glycidyl methacrylate as the cure-site monomer. These materials were targeted for use as coatings to prevent marine biofouling. A series of terpolymers were prepared through application of the macromonomer approach, allowing for control of cross-link d., Tg, and modulus. Structure/property relationships were established through compositional variation with regard to the three classes of monomers. The first monomer class was an alkyl (meth)acrylate used to create the continuous phase of the microphase-separated graft terpolymers. Variation between Me methacrylate (MMA) and Bu acrylate (BA) provided materials with a low (-10 °C) and a high (95 °C) Tg for the continuous phase. This was a means of isolating the effect of modulus and Tg on surface properties, while the basic chemical nature of the monomer remained unchanged. The second monomer class contained a curable functional group. Through incorporation of glycidyl methacrylate (GMA) in the monomer feed and manipulation of curing conditions, the relative effect of cross-link d. on surface dynamics has been evaluated. The third monomer class was the PFPE macromonomer itself. The incorporation of this macromonomer was used to enhance the release properties of the resulting materials which relied on surface enrichment of the low surface energy PFPE component. Dynamic surface properties of these materials have been evaluated through dynamic surface tensiometry (DST). Herein, it has been demonstrated that contact angle hysteresis can be significantly mitigated (i.e.,  $\theta_r$  is maximized) by as much as 50° through variation in bulk polymer composition, the chemical nature of monomers, cross-link d., modulus, and environmental conditions at the time of cure. The antifouling and fouling-release potential of the exptl. coatings were also evaluated by laboratory assays employing the green fouling macroalga *Ulva*. The results from these initial studies suggest promising antifouling properties, especially with regard to spore settlement which was strongly inhibited on the exptl. surfaces. Addnl., those that did settle were only weakly attached with one sample set exhibiting fairly moderate release of the young *Ulva* plants.

RE.CNT 45 THERE ARE 45 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

LS ANSWER 4 OF 36 CAPLUS COPYRIGHT 2007 ACS on STN

AN 2005:742049 CAPLUS

TI Rational fabrication of polymeric nanostructures using pattern replication in non-wetting templates (PRINT)

AU Maynor, Benjamin W.; Euliss, Larken E.; Rolland, Jason; DeSimone, Joseph M.

CS Department of Chemistry, University of North Carolina, Chapel Hill, NC, 27599, USA

SO Abstracts of Papers, 230th ACS National Meeting, Washington, DC, United States, Aug. 28-Sept. 1, 2005 (2005), POLY-107 Publisher: American Chemical Society, Washington, D. C.  
CODEN: 69HFCL

DT Conference; Meeting Abstract; (computer optical disk)

LA English

AB Recently, we have developed an innovative new technique, Pattern Replication in Non-wetting Templates (PRINT) for nanometer scale imprint lithog. molding. PRINT uses photocurable perfluoropolyether (PFPE) elastomers as molds, which offers unique advantages compared to other imprint lithog. materials such as poly (dimethylsiloxane), silicon, or glass. Because PFPE molds present low-energy fluorinated surfaces, they have exceptional release properties which enable straightforward fabrication of sub-100 nm structures. Here, we present results demonstrating that we can use PRINT to template a variety of polymerization processes. Furthermore, we have begun to characterize some

of the relevant mech. parameters involved in the patterning process, such as applied imprinting pressure and surface energy. We believe that PRINT presents a general strategy for the synthesis of nanostructured polymer films, and will find applications in diverse areas such as electronics and medical devices.

L5 ANSWER 5 OF 36 CAPLUS COPYRIGHT 2007 ACS on STN

AN 2005:682638 CAPLUS

DN 143:480077

TI Synthesis and tribological behavior of a chlorinated-phenyl methyl-terminated silicon oil as aerospace lubricant

AU Weng, Li-jun; Wang, Hai-zhong; Feng, Da-peng; Pan, Guang-ming; Duan, Yu-rong; Liu, Wei-min; Xue, Qun-ji

CS State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, Lanzhou, 730000, Peop. Rep. China

SO Moxue Xuebao (2005), 25(3), 254-257

CODEN: MAXUE7; ISSN: 1004-0595

PB Kexue Chubanshe

DT Journal

LA Chinese

AB The polymer of chlorinated-Ph methyl-terminated silicon oil (CPSO) was synthesized. The phys. properties such as saturated vapor pressure and evaporation

weight loss of CPSO were investigated. The thermal stability of CPSO was analyzed using thermogravimetric anal. in nitrogen atmosphere. The tribol. properties of the CPSO as the lubricant for a GCr15/CuSn alloy contact in air were evaluated by using an Optimol SRV oscillating friction and wear tester, using perfluoropolyether (PFPE) and synthetic phosphazene X-1P as the refs. Moreover, the tribol. properties of the CPSO as the lubricant for a GCr15/9Cr18 contact in vacuum pressure  $1 + 10^{-3}$  Pa were evaluated by using a CZM vacuum friction and wear tester, also using PFPE and X-1P as the refs. The synthetic silicon oil had excellent thermal stability, low temperature fluidity and very low saturated vapor pressure. It was superior to PFPE and X-1P as the lubricant for the GCr15/CuSn alloy contact in air and for the GCr15/9Cr18 contact in vacuum of a pressure  $1 + 10^{-3}$  Pa. Therefore, the synthetic silicon oil CPSO as the liquid lubricant could find promising application in the lubrication of various space mechanisms working in harsh conditions such as high vacuum, low temperature, and strong irradiation

L5 ANSWER 6 OF 36 CAPLUS COPYRIGHT 2007 ACS on STN

AN 2005:236401 CAPLUS

DN 142:464068

TI Dispersion Polymerization of Methyl Methacrylate in Supercritical Carbon Dioxide: An Investigation into Stabilizer Anchor Group



AU Woods, Helen M.; Nouvel, Cecile; Licence, Peter; Irvine, Derek J.; Howdle, Steven M.  
 CS School of Chemistry, The University of Nottingham, Nottingham, NG7 2RD, UK  
 SO Macromolecules (2005), 38(8), 3271-3282  
 CODEN: MAMOBX; ISSN: 0024-9297  
 PB American Chemical Society  
 DT Journal  
 LA English  
 AB New stabilizers for the dispersion polymerization of Me methacrylate (MMA) in supercrit. carbon dioxide (scCO<sub>2</sub>) were prepared and studied in terms of their anchor group architecture. The same perfluoropolyether (PFPE) chain was used in each case as the CO<sub>2</sub>-philic portion of the stabilizer and four different PMMA-philic headgroups were investigated as anchoring units: an alc., an acetate group, a methacrylate unit, and a PMMA block. When compared to the stabilizing ability of PFPE-alc., incorporation of an anchor group as small as an acetate group, or a reactive group such as a methacrylate unit, was found to have a dramatic effect upon the dispersion polymerization of MMA in scCO<sub>2</sub>. Their incorporation led to a significant increase in PMMA yield and mol. weight and an improvement of the morphol. of the polymer product. A method for the synthesis of PFPE-b-PMMA diblock copolymers is reported via atom transfer radical polymerization (ATRP) from a PFPE-bromoester macroinitiator in a fluorinated solvent (pentafluorobutane). This method allows the controlled synthesis of PFPE-b-PMMA diblock copolymers with well-defined architecture. These copolymers were found to be effective stabilizers in scCO<sub>2</sub>, leading to excellent PMMA yield with high mol. weight and a fine morphol. The effect of PFPE and PMMA block length on the copolymer stabilizing ability was also studied to probe the influence of the stabilizer anchor-soluble balance (ASB). In addition, the phase behavior of each stabilizer in CO<sub>2</sub> or a mixture of CO<sub>2</sub>/MMA was studied to elucidate the effect of stabilizer structure on CO<sub>2</sub>-philicity and stabilizing ability.

RE.CNT 49 THERE ARE 49 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 7 OF 36 CAPLUS COPYRIGHT 2007 ACS on STN  
 AN 2005:194306 CAPLUS  
 TI Fluoropolymers for use in next generation microfluidic devices, micromolding/soft lithographic techniques, and as proton exchange membranes and inks for use in fuel cells  
 AU DeSimone, Joseph M.  
 CS NSF Center for Environmentally Responsible Solvents and Processes, Department of Chemistry, University of North Carolina & Department of Chemical Engineering, NC State University, Chapel Hill, NC, 27599-3290, USA  
 SO Abstracts of Papers, 229th ACS National Meeting, San Diego, CA, United States, March 13-17, 2005 (2005), POLY-208 Publisher: American Chemical Society, Washington, D. C.  
 CODEN: 69GQMP  
 DT Conference; Meeting Abstract  
 LA English  
 AB This lecture will focus on an approach to using fluoropolymers in novel solvent-compatible microfluidic devices based upon the use of perfluoropolyether (PFPE)-based elastomers. Devices made using this approach show remarkable resistance to organic solvents and as such open up entirely new uses for microfluidic devices. Specifically, this work has the potential to expand the field of microfluidics to many novel applications involving micro- and nano-chemical platforms. In addition, we have shown the utility of PFPE-based materials to be used as molds in soft lithog. imprint techniques. The materials show ideal properties for imprinting and molding techniques to generate isolated objects that are uniform in size and dimensionality down to the sub 100-nm regime. This presentation will also cover the synthesis of variants of Nafion<sup>TM</sup>. An interesting aspect of this work involves the

merging of soft lithog. methods with PEMs to make patterned, high surface area PEMs. The goals of this research are to increase mech. stability, reduce methanol permeability, to improve the power d., and to further integrate fuel cell concepts into more functional systems and materials.

L5 ANSWER 8 OF 36 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 2004:953290 CAPLUS  
TI Dispersion Polymerisation of Methyl Methacrylate in Supercritical Carbon Dioxide: Investigating the Stabiliser Anchor Group  
AU Woods, Helen M.; Howdle, Steven M.  
CS Department of Chemistry, The University of Nottingham, Nottingham, NG7 2DF, UK  
SO Abstracts, 39th Western Regional Meeting of the American Chemical Society, Sacramento, CA, United States, October 27-30 (2004), GEN-014 Publisher: American Chemical Society, Washington, D. C.  
CODEN: 69FWDT  
DT Conference; Meeting Abstract  
LA English  
AB Over the past decade supercrit. carbon dioxide (scCO<sub>2</sub>) has generated much interest as a polymerization solvent. Industrially important polymers such as poly(Me methacrylate) (PMMA) can be synthesized in scCO<sub>2</sub> by dispersion polymerization using a surfactant. The surfactant partitions itself between the CO<sub>2</sub> medium and the polymer phase, preventing aggregation of the polymer particles and allowing the polymerization to continue to high conversion. An effective surfactant consists of a CO<sub>2</sub>-philic' portion, which extends into the scCO<sub>2</sub>, and a polymer-philic' portion which anchors to the growing polymer. New surfactants for the dispersion polymerization of Me methacrylate in scCO<sub>2</sub> have been prepared and studied in terms of their anchor group architecture. An identical perfluoropolyether (PFPE) (Krytox<sup>TM</sup> - supplied by Dupont) was used in each case as the CO<sub>2</sub>-philic portion of the surfactant, while four different PMMA-philic head groups were investigated as anchoring portions: an alc., a Me ester, a methacrylate unit and a PMMA block. Incorporation of a polymer-philic group as small as a Me ester, or a reactive group such as a methacrylate unit led to a significant increase in PMMA yield and mol. weight, and to a fine particle morphol. A method for the synthesis of well-defined PFPE-b-PMMA diblock copolymers has been developed via atom transfer radical polymerization (ATRP) from a PFPE macroinitiator. These copolymers were found to be excellent stabilizers. We have studied the effect of PFPE and PMMA block length on stabilizing ability so as to probe the influence of the surfactant anchor-to-soluble balance. The phase behavior of each surfactant in scCO<sub>2</sub> or a mixture of scCO<sub>2</sub>/MMA was studied using a variable volume view cell. This study provides information on the effect of surfactant architecture on CO<sub>2</sub>-philicity and helps elucidate the trends observed in stabilizing ability for the different surfactants.

L5 ANSWER 9 OF 36 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 2004:670071 CAPLUS  
DN 141:368252  
TI Liquid precursors for applications in microfluidics, soft lithography, and fuel cells  
AU Rolland, Jason P.; Zhou, Zhilian; Kelly, Jennifer Y.; Denison, Giner M.; van Dam, R. Michael; Hagberg, Erik C.; Carter, Kenneth R.; Quake, Stephen R.; DeSimone, Joseph M.  
CS Department of Chemistry, University of North Carolina at Chapel Hill, Chapel Hill, NC, 27599, USA  
SO PMSE Preprints (2004), 91, 254-255  
CODEN: PPMRA9; ISSN: 1550-6703  
PB American Chemical Society  
DT Journal; (computer optical disk)  
LA English  
AB A novel solvent-compatible microfluidic device fabricated from

perfluoropolyether (PFPE)-based elastomers is presented. Photocuring decreased fabrication from several hours to a matter of minutes and the field of microfluidics may include many novel applications in future. The utility of PFPE stamps in soft lithog. stamping techniques was also demonstrated. Preliminary expts. were performed in the synthesis of novel photocurable liquid precursors for polymer electrolyte membranes for fuel cells. Acid incorporation and acid conversion was verified with IR spectroscopy.

RE.CNT 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 10 OF 36 CAPLUS COPYRIGHT 2007 ACS on STN

AN 2004:517215 CAPLUS

DN 141:380207

TI Novel branched fluorinated oligourethane cationomers for low surface tension treatments

AU Trombetta, Tania; Turri, Stefano; Levi, Marinella

CS Bollate, 20021, Italy

SO Progress in Colloid & Polymer Science (2004), 124, 47-53

CODEN: PCPSD7; ISSN: 0340-255X

PB Springer

DT Journal

LA English

AB Novel branched cationic fluorinated oligourethanes were obtained by a two-step addition synthesis between aliphatic polyisocyanates containing, as a core structure, isocyanurate rings, N,N-dialkylaminoalcs., and bifunctional perfluoropolyether (PFPE) diols having the following structure: HOCH<sub>2</sub>CF<sub>2</sub>(OCF<sub>2</sub>CF<sub>2</sub>)<sub>p</sub>(OCF<sub>2</sub>)<sub>q</sub>OCF<sub>2</sub>CH<sub>2</sub>OH (Fomblin ZDOL). After completing the polymerization (NCO/OH=0.50 to 0.91), the oligourethanes were salified with acetic acid and dispersed in water. The oligourethanes were characterized by 19F-NMR spectroscopy, chemical titration, and GPC anal. The aqueous dispersion was analyzed by dynamic LLS for the determination of the average particle size. The oligourethane dispersions were cast

on hard surfaces (aluminum and glass) and cured at 150-180 °C for a few minutes, resulting in 2-5 µm thick homogeneous films. Crosslinking was proven by chemical resistance test (solvent double rub test) and FT-IR spectroscopy. It was observed that the oligourethane is capable of thermal crosslinking due to the reaction between free OH and dialkylaminourethanes, which effectively act as blocking agent (latent NCO functions). Surface properties of the novel PFPE-based oligourethane cationomers were evaluated by static contact angle measurements against both water and n-hexadecane.

RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 11 OF 36 CAPLUS COPYRIGHT 2007 ACS on STN

AN 2004:225096 CAPLUS

TI Metallic nanoparticle production using supercritical carbon dioxide as a tunable solvent

AU McLeod, M. Chandler; Roberts, Christopher B.; Kitchens, Christopher L.

CS Department of Chemical Engineering, Auburn University, Auburn, AL, 36849-5127, USA

SO Abstracts of Papers, 227th ACS National Meeting, Anaheim, CA, United States, March 28-April 1, 2004 (2004), IEC-057 Publisher: American Chemical Society, Washington, D. C.

CODEN: 69FGKM

DT Conference; Meeting Abstract

LA English

AB Supercrit. carbon dioxide is a benign, inexpensive solvent which can replace organic solvents used in the reverse micellar synthesis of nanoparticles. The reverse micelles acts as nanosized reactors that allow for the growth and stabilization of monodisperse nanoparticles. Recent research our group and others has employed ammonium carboxylate

perfluoropolyether (PFPE-NH<sub>4</sub>) reverse micelles in supercrit. CO<sub>2</sub> in an effort to harness the adjustable solvent properties of supercrit. fluids and the benign nature of CO<sub>2</sub>. We have shown that synthesis of silver nanoparticles using PFPE-NH<sub>4</sub> results in the stabilized silver intermediates as evidenced by persistent multiple UV-Vis absorption bands. To investigate these issues we will explore alternate methods for metallic nanoparticle synthesis using CO<sub>2</sub> as a tunable solvent. This will encompass such variations as cosolvent addns. to PFPE-NH<sub>4</sub>/CO<sub>2</sub> microemulsions, use of alternate CO<sub>2</sub> soluble surfactants, and the use of metal precursor/stabilizer systems not requiring the formation of a microemulsion.

L5 ANSWER 12 OF 36 CAPLUS COPYRIGHT 2007 ACS on STN

AN 2003:410149 CAPLUS

DN 139:204906

TI Synthesis of titanium dioxides in water-in-carbon dioxide microemulsion and their photocatalytic activity

AU Hong, Seong-Soo; Lee, Man Sig; Lee, Gun-Dae; Lim, Kwon Taek; Ha, Bae-Jin  
CS Division of Chemical Engineering, Pukyong National University, Nam-ku, Pusan, 608-739, S. Korea

SO Materials Letters (2003), 57(19), 2975-2979  
CODEN: MLETDJ; ISSN: 0167-577X

PB Elsevier Science B.V.

DT Journal

LA English

AB Titania nanoparticles were prepared by controlled hydrolysis of titanium tetraisopropoxide (TTIP) in water-in-carbon dioxide microemulsion using ammonium carboxylate perfluoropolyether (PFPE-NH<sub>4</sub>) as a surfactant. The phys. properties were examined by thermogravimetric-DTA (TGA-DTA), X-ray diffraction (XRD) and transmission electron microscope (TEM). In addition, the photocatalytic decomposition of p-nitrophenol was also investigated using batch reactor in the presence of UV light. It is shown that the residual hydroxyl group and the organic compds. were completely removed in the calcining temperature from 250 to 450°C and the amorphous phase transformed to anatase structure above 450°C. The crystallinity and crystallite size of nanoparticles produced in water-in-carbon dioxide increased with an increase of W/O ratio. In the photocatalytic decomposition of p-nitrophenol, the photocatalytic activity was mainly determined by the crystallite size of titania and the reaction rate increased with a decrease of crystallite size.

RE.CNT 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 13 OF 36 CAPLUS COPYRIGHT 2007 ACS on STN

AN 2003:269566 CAPLUS

DN 139:133941

TI Perfluoropolyether (PFPE) (poly)diacyl peroxides: synthesis and applications

AU Wlassics, Ivan; Tortelli, Vito; Sala, Marco; Montrone, Donato  
CS Ausimont-Gruppo Solvay, Bollate (MI), 50-20021, Italy

SO Journal of Fluorine Chemistry (2003), 121(1), 65-74  
CODEN: JFLCAR; ISSN: 0022-1139

PB Elsevier Science B.V.

DT Journal

LA English

AB Perfluoropolyether (PFPE) (poly)diacyl peroxides with mean EWS ranging from 500 to 4000 g eq.<sup>-1</sup> are synthesized from the corresponding PFPE diacyl halides using H<sub>2</sub>O<sub>2</sub> under alkaline conditions and their thermal and hydrolytic decomposition kinetics are studied. A great advantage of this novel synthesis over other synthetic approaches is the ease in obtaining polyperoxides containing up to at least two diacyl peroxide groups/chain. This property confers to these peroxides a greater thermal stability. The synthesis of PFPE diacyl peroxides and its dependence on contact times of

reagents, solvent, reaction temperature and reagent concns. are presented and discussed. Data concerning the thermal and hydrolytic decomposition of these PFPE diacyl peroxides as well as the dependence of their homolytic decomposition kinetics on EW will also be presented and discussed. These PFPE (poly)diacyl peroxides could in turn be easily available precursors of the corresponding  $\alpha,\omega$ -iodides or bromides.

RE.CNT 48 THERE ARE 48 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 14 OF 36 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 2003:222853 CAPLUS  
DN 138:369257  
TI Synthesis and characterization of perfluoropolyether graft terpolymers for biofouling applications  
AU Rolland, Jason P.; DeSimone, Joseph M.  
CS Department of Chemistry, University of North Carolina at Chapel Hill, Chapel Hill, NC, 27599-3290, USA  
SO PMSE Preprints (2003), 88, 606-607  
CODEN: PPMRA9; ISSN: 1550-6703  
PB American Chemical Society  
DT Journal; (computer optical disk)  
LA English  
AB Graft terpolymers containing various acrylic monomers (Me methacrylate, n-Bu methacrylate, n-Bu acrylate, and 1H,1H-perfluorooctyl methacrylate), hydroxyethyl acrylate, and a perfluoropolyether (PFPE,  $\text{H}_2\text{C}=\text{C}(\text{Me})-\text{CONH}-(\text{CH}_2)_3-\text{NHCO}-\text{CF}_2-[-(\text{O}-\text{CF}_2-\text{CF}(\text{CF}_3)-)]_n\text{CF}_3$ ,  $n = 7, 8$ ) macromonomer were prepared by solution free radical polymerization and verified by  $^1\text{H}$  NMR. These systems exhibited 2 glass transition temps. at high macromonomer content. Crosslinking with hexamethylene diisocyanate trimer was accomplished and verified by IR. Preliminary contact angle data show a large increase in advancing and receding angles with a 10% addition of the PFPE macromonomer.

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 15 OF 36 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 2003:186147 CAPLUS  
TI Synthesis and characterization of perfluoropolyether graft terpolymers for biofouling applications  
AU Desimone, Joseph M.; Rolland, Jason  
CS Department of Chemistry, CB 3290, University of North Carolina at Chapel Hill, Chapel Hill, NC, 27599-3290, USA  
SO Abstracts of Papers, 225th ACS National Meeting, New Orleans, LA, United States, March 23-27, 2003 (2003), PMSE-350 Publisher: American Chemical Society, Washington, D. C.  
CODEN: 69DSA4  
DT Conference; Meeting Abstract  
LA English  
AB Minimally adhesive materials are currently being investigated for use as fouling release coatings. The attachment of organisms to a ship hull can dramatically increase drag and therefore fuel consumption. A mech. stable, non-toxic coating is desired to prevent the adhesion of foulants. We are investigating perfluoropolyethers (PFPEs) as low surface energy components in these coatings. Ongoing work on this project involves the systematic variation of surface and bulk properties including  $T_g$ , fluorine content, and crosslink d. A series of graft terpolymers has been synthesized. The monomers used were Me methacrylate, Bu methacrylate, Bu acrylate, and 1H,1H-perfluorooctyl methacrylate. These monomers were polymerized by free radical solution polymerization along with varying percentages of hydroxyethylacrylate and a perfluoropolyether macromonomer that was also synthesized. Differential scanning calorimetry results show two distinct  $T_g$ 's for polymers containing a large percentage of the

perfluoropolyether macromonomer. Curing expts. have also been performed using the isocyanurate trimer of hexamethylenediisocyanate and monitored by IR spectroscopy. Preliminary contact angle measurements show a distinct increase in both the advancing and receding contact angles with only a 10 wt% addition of the PFPE macromonomer.

L5 ANSWER 16 OF 36 CAPLUS COPYRIGHT 2007 ACS on STN

AN 2003:170647 CAPLUS

DN 138:327142

TI Synthesis and Stabilization of Silver Metallic Nanoparticles and Premetallic Intermediates in Perfluoropolyether/CO<sub>2</sub> Reverse Micelle Systems

AU McLeod, M. Chandler; McHenry, R. S.; Beckman, Eric J.; Roberts, Christopher B.

CS Department of Chemical Engineering, Auburn University, Auburn, AL, 36849, USA

SO Journal of Physical Chemistry B (2003), 107(12), 2693-2700

CODEN: JPCBFK; ISSN: 1520-6106

PB American Chemical Society

DT Journal

LA English

AB This article presents the stabilization of silver nanoparticle intermediates synthesized in ammonium perfluoropolyether (PFPE-NH<sub>4</sub>) reverse micelles with supercrit. fluid (SCF) carbon dioxide solvent as the continuous phase. Specifically, the intermediates were formed by the reduction of silver nitrate salt (AgNO<sub>3</sub>) encapsulated within PFPE-NH<sub>4</sub> reverse micelles. The effect of reducing agent type, reverse micelle water content, water core buffering, and bulk solvent type were all investigated as factors affecting stabilization of the silver nanoparticle intermediates. Particles were characterized by in situ UV-visible spectroscopy and transmission electron microscopy (TEM). The UV-vis spectrum of these nanosized silver particles is sensitive to particle size, and thus time-resolved spectral measurements were utilized as a means of monitoring both intermediate growth and persistence. The silver intermediates were stabilized in PFPE-NH<sub>4</sub> reverse micelles as indicated by multiple UV-vis absorption bands that persist for periods of time measured to greater than 9 h. Intermediate stabilization is facilitated by a unique environment existing specifically as a result of PFPE-NH<sub>4</sub> surfactant presence and its local water environment in the reverse micelle rather than any effects arising from the carbon dioxide solvent.

RE.CNT 45 THERE ARE 45 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 17 OF 36 CAPLUS COPYRIGHT 2007 ACS on STN

AN 2003:127235 CAPLUS

DN 138:225255

TI Synthesis of nanostructured titania powders via hydrolysis of titanium isopropoxide in supercritical carbon dioxide

AU Stallings, William E.; Lamb, H. Henry

CS Department of Chemical Engineering, North Carolina State University, Raleigh, NC, 27695-7905, USA

SO Langmuir (2003), 19(7), 2989-2994

CODEN: LANGD5; ISSN: 0743-7463

PB American Chemical Society

DT Journal

LA English

AB Titania powders were synthesized via hydrolysis of titanium(IV) isopropoxide (TIP) in supercrit. carbon dioxide (SCCD). Injection of TIP into water-in-CO<sub>2</sub> (w/c) dispersions resulted in precipitation of spherical titania particles, and free-flowing white titania powders were isolated in 65-70% yield by slow isothermal depressurization. Qual. similar results were obtained with and without the addition of an anionic phosphate

fluorosurfactant (DuPont Zonyl FSP) to stabilize the w/c dispersions. The titania powders had broad particle size distributions (20-800 nm) and sp. surface areas in the 100-500 m<sup>2</sup>/g range. Addition of Zonyl FSP resulted in a decrease in sp. surface area at a given water-to-alkoxide molar ratio (hydrolysis level). The sp. surface area increased as the hydrolysis level was increased, irresp. of the presence of surfactant. The surface area is associated primarily with internal porosity of the spherical titania particles, as evidenced by scanning transmission electron microscopy and N<sub>2</sub> porosimetry. Calcination of a surfactant-free titania powder at 300 °C in air decreased the sp. surface area from .apprx.300 to 65 m<sup>2</sup>/g and increased the mean cylindrical pore diameter from 2.6 to 4.9 nm, consistent with collapse of micropores. Titania nanoparticle synthesis via TIP hydrolysis in SCCD was attempted using w/c microemulsions formed with ammonium carboxylate perfluoropolyether (PFPE-NH<sub>4</sub>); however, injection of TIP into PFPE -NH<sub>4</sub>-stabilized microemulsions resulted in precipitation of 0.3-2 µm titania particles. The use of other CO<sub>2</sub>-soluble titanium(IV) alkoxides gave qual. similar results.

RE.CNT 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 18 OF 36 CAPLUS COPYRIGHT 2007 ACS on STN

AN 2003:8502 CAPLUS

DN 138:346322

TI Study on the synthesis of TiO<sub>2</sub> nanoparticles in a water-in-carbon dioxide microemulsion and their photocatalytic activity for p-nitrophenol degradation

AU Lee, Man Sig; Lee, Gun-Dae; Hong, Seong-Soo

CS Division of Chemical Engineering, Pukyong National University, Pusan, 608-739, S. Korea

SO Hwahak Konghak (2002), 40(4), 415-421

CODEN: HHKHAT; ISSN: 0304-128X

PB Korean Institute of Chemical Engineers

DT Journal

LA Korean

AB Titania nanoparticles were prepared by controlled hydrolysis of titanium tetraisopropoxide (TTIP) in PFPE-NH<sub>4</sub> (ammonium carboxylate perfluoropolyether) and PDMAEMA (dimethylaminoethyl methacrylate-1H,1H,2H,2H-perfluorooctyl methacrylate block copolymer)/water-in-CO<sub>2</sub> microemulsions. The phys. properties, such as crystallite size and crystallinity were investigated by TGA-DTA, FT-IR, XRD and TEM. In addition, the photocatalytic degradation of p-nitrophenol has been studied using batch reactor in the presence of UV light in order to compare the photocatalytic activity of prepared nanosized titania. The residual organic compound and hydroxyl group were completely removed in calcination temperature from the 250-450° C and the amorphous phase changed into anatase structure above 450° C. In the photocatalytic degradation of p-nitrophenol, the photocatalytic activity is mainly determined by the crystallite size of titania and the reaction rate increased with an decrease of crystallite size.

L5 ANSWER 19 OF 36 CAPLUS COPYRIGHT 2007 ACS on STN

AN 2003:3804 CAPLUS

DN 138:238490

TI Fluorinated block copolymers containing poly(vinylidene fluoride) or poly(vinylidene fluoride-co-hexafluoropropylene) blocks from perfluoropolyethers: synthesis and thermal properties

AU Gelin, Marie-Pierre; Ameduri, Bruno

CS Laboratory of Macromolecular Chemistry, Unite Mixte de Recherche (CNRS) 5076, Ecole Nationale Supérieure de Chimie de Montpellier 8, Montpellier, 34296, Fr.

SO Journal of Polymer Science, Part A: Polymer Chemistry (2002), Volume Date 2003, 41(1), 160-171

CODEN: JPACEC; ISSN: 0887-624X

PB John Wiley & Sons, Inc.

DT Journal

LA English

AB PFPE-b-PVDF and PFPE-b-poly(VDF-co-HFP) block copolymers [where PFPE, PVDF, VDF, and HFP represent perfluoropolyether, poly(vinylidene fluoride), vinylidene fluoride (or 1,1-difluoroethylene), and hexafluoropropylene] were synthesized by radical (co)telomerizations of VDF (or VDF and HFP) with an iodine-terminated perfluoropolyether (PFPE-I). Di-tert-Bu peroxide (DTBP) was an efficient thermal initiator. The nos. of VDF and VDF/HFP base units in the block copolymers were assessed with <sup>19</sup>F NMR spectroscopy. According to the initial [PFPE-I]<sub>0</sub>/[fluoroalkenes]<sub>0</sub> and [DTBP]<sub>0</sub>/[fluoroalkenes]<sub>0</sub> molar ratios, fluorinated block copolymers of various mol. wts. (1500-30,300) were obtained. The states and thermal properties of these fluoropolymers were investigated. The compds. containing PVDF blocks with more than 30 VDF units were crystalline, whereas all those containing poly(VDF-co-HFP) blocks exhibited amorphous states, whatever the nos. were of the fluorinated base units. All the samples showed neg. glass-transition temps. higher than that of the starting PFPE. Interestingly, these PFPE-b-PVDF and PFPE-b-poly(VDF-co-HFP) block copolymers exhibited good thermal stability.

RE.CNT 62 THERE ARE 62 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 20 OF 36 CAPLUS COPYRIGHT 2007 ACS on STN

AN 2002:943775 CAPLUS

DN 138:354672

TI Synthesis of low molecular weight perfluoro oxymethylene vinyl ethers

AU Marchionni, G.; De Patta, U.; Spataro, G.; Tortelli, Vito

CS Research and Development Centre, Solvay-Ausimont CRS, Milan, 20021, Italy

SO Journal of Fluorine Chemistry (2003), 119(1), 83-88

CODEN: JFLCAR; ISSN: 0022-1139

PB Elsevier Science B.V.

DT Journal

LA English

AB Oligomeric perfluoro oxymethylene vinyl ethers (which can be used as modifiers for fluorinated plastics) have been formed by a multi-step synthesis starting from perfluoropolyether fluoroformates obtained from the photo-oxidation of perfluoropropene. The key intermediates are low mol. weight perfluoropolyether (PFPE) fluoroformates CF<sub>3</sub>O(CF<sub>2</sub>)<sub>n</sub>COF n=1-6 obtained from the photo-oxidation of perfluoro propene (HFP) in perfluorohexane. Under certain conditions the light-mediated fluorination of PFPE fluoroformates gives PFPE hypofluorites CF<sub>3</sub>O(CF<sub>2</sub>)<sub>n</sub>CF<sub>2</sub>OF, which can be added to sym dichlorodifluoroethene to form the dichloro adduct CF<sub>3</sub>O(CF<sub>2</sub>)<sub>n</sub>CF<sub>2</sub>OCFClCF<sub>2</sub>Cl which, after dechlorination, gives the desired vinyl ethers CF<sub>3</sub>O(CF<sub>2</sub>)<sub>n</sub>CF<sub>2</sub>OCF:CF<sub>2</sub>. Every reaction step has to be properly controlled as far as the reaction variables are concerned. A mechanistic scheme is presented that is consistent with the observed exptl. data.

RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 21 OF 36 CAPLUS COPYRIGHT 2007 ACS on STN

AN 2002:943770 CAPLUS

DN 138:272023

TI Synthesis of an original poly(vinylidene fluoride-co-hexafluoropropylene)-g-perfluoropolyether graft copolymer

AU Gelin, M. P.; Ameduri, B.

CS Laboratory of Macromolecular Chemistry, UMR 5076, Ecole Nationale Supérieure de Chimie de Montpellier, Montpellier, F-34296, Fr.



SO Journal of Fluorine Chemistry (2003), 119(1), 53-58

CODEN: JFLCAR; ISSN: 0022-1139

PB Elsevier Science B.V.

DT Journal

LA English

AB The synthesis of one original poly(vinylidene fluoride-co-hexafluoropropylene)-g-perfluoropolyether graft copolymer, obtained by the radical terpolymn. of vinylidene fluoride (VDF), hexafluoropropylene (HFP) and a perfluoropolyether (PFPE) bearing an  $\omega$ -allylic group, is presented. This functional PFPE was synthesized from the condensation of an  $\omega$ -carboxylic PFPE with an allyl amine. The terpolymn. was initiated by t-Bu peroxide in a perfluorohexane/acetonitrile mixture.  $^{19}\text{F}$  NMR spectroscopy enabled the VDF, HFP and allyl amido PFPE base groups contained in the terpolymer to be assessed, showing good incorporation of VDF and the poor reactivity of HFP.

RE.CNT 49 THERE ARE 49 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 22 OF 36 CAPLUS COPYRIGHT 2007 ACS on STN

AN 2002:879067 CAPLUS

DN 138:188461

TI Perfluoropolyether functional oligomers: unusual reactivity in organic chemistry

AU Tonelli, Claudio; Di Meo, Antonella; Fontana, Simonetta; Russo, Antonio

CS Centro Ricerche e Sviluppo, Ausimont S.p.A., Milan, 20021, Italy

SO Journal of Fluorine Chemistry (2002), 118(1-2), 107-121

CODEN: JFLCAR; ISSN: 0022-1139

PB Elsevier Science B.V.

DT Journal

LA English

AB The chemical of some functional perfluoropolyether (PFPE) macromols. is described. Unusual reactivities are discussed and different highly selective synthetic routes are explored. New polymeric materials containing a PFPE chain, characterized by SEM and TEM analyses, are presented. The chemical of some functional perfluoropolyether (PFPE) macromols., synthesized by oxidative photopolymn. of perfluoroolefins, is described. Starting from Et ester precursors different synthetic routes focused on  $\alpha$ ,  $\omega$ -difunctional or monofunctional mols. are explored. These mols. are characterized by the following segmented structures:  $\text{Rh-CF}_2\text{O}(\text{CF}_2\text{CF}_2\text{O})_p(\text{CF}_2\text{O})_q\text{CF}_2\text{-RhCl}(\text{C}_3\text{F}_6\text{O})_n\text{CF}_2\text{-Rh}$ . Some significant examples showing the specific reactivity imparted by the fluorinated moiety to the mol., together with important effects of phase seps. on the selectivity, are presented. Reduction, hydrolysis, condensation and nucleophilic reactions are discussed. Within these categories, organic and inorg. ester formation and hydrolysis, ethers synthesis and amination reactions are analyzed in depth. Anal. features (NMR and FT-IR) are presented and some mechanistic pathways proposed together with some kinetic studies. Finally, some significant examples of a new class of PFPE-containing polymers are reported and their morphol. investigated by SEM and TEM analyses. The wide selection of the different constitutional components of structures (I) and (II) allows a fine tuning of their chemical and phys. properties, giving rise to a new family of mols. with a broad range of application behavior.

RE.CNT 50 THERE ARE 50 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 23 OF 36 CAPLUS COPYRIGHT 2007 ACS on STN

AN 2002:287613 CAPLUS

DN 137:109802

TI Synthesis and characterization of silica hybrids based on poly(.vepsiln.-caprolactone-b-perfluoropolyether -b-.vepsiln.-caprolactone)

AU Messori, M.; Toselli, M.; Pilati, F.; Mascia, L.; Tonelli, C.

CS Dipartimento di Chimica Applicata e Scienza dei Materiali, Università di  
Bologna, Bologna, 40136, Italy  
SO European Polymer Journal (2002), 38(6), 1129-1136  
CODEN: EUPJAG; ISSN: 0014-3057  
PB Elsevier Science Ltd.  
DT Journal  
LA English  
AB Poly(.vepsiln.-caprolactone-b-perfluoropolyether  
-b-.vepsiln.-caprolactone) (PCL-PFPE-PCL) triblock copolymers  
having hydroxy end groups were readily functionalized with triethoxysilane  
end groups by reactions with 3-isocyanatopropyltriethoxysilane.  
Organic-inorg. hybrids were prepared by using the sol-gel process in the  
presence of tetraethoxysilane and hydroxy or triethoxysilane terminated  
PCL-PFPE-PCL. Fully transparent hybrid materials with high  
content of organic matter were obtained only in the case of alkoxy-silane  
functionalized copolymers. For such systems the PCL-PFPE-PCL  
copolymer was so intimately mixed with the inorg. network to prevent  
crystallization of the PCL segments. The progress of the sol-gel reaction was  
limited by the early vitrification of the reactive system, while the  
interpenetration of the organic phase was enhanced by curing the samples at  
100 °C.

RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 24 OF 36 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 2001:921907 CAPLUS  
DN 136:232666  
TI Synthesis, characterization, and properties of a novel acrylic  
terpolymer with pendant perfluoropolyether segments  
AU Casazza, Elena; Mariani, Alberto; Ricco, Laura; Russo, Saverio  
CS Dipartimento di Chimica e Chimica Industriale, Università di Genova,  
Genoa, 16146, Italy  
SO Polymer (2001), Volume Date 2002, 43(4), 1207-1214  
CODEN: POLMAG; ISSN: 0032-3861  
PB Elsevier Science Ltd.  
DT Journal  
LA English  
AB A novel acrylic terpolymer with pendant perfluoropolyether (PFPE) segments has been synthesized and fully characterized. By hexamethylene diisocyanate functional groups PFPE monofunctional macromonomers have been grafted on a poly(Bu methacrylate-co-hydroxyethyl acrylate-co-Et acrylate) random terpolymer. Such grafted copolymer behaves like an interface-active material, since the perfluoropolyether segments in solvent cast films rearrange themselves at the air-polymer interface by surface segregation. In addition, blends of the above graft copolymer with acrylic base polymers (either the terpolymer itself or a com. copolymer) have been examined in terms of surface segregation and fluorine enrichment of the external layers. The critical surface tension,  $\gamma_c$ , of solid films made of the neat graft copolymer as well as of the polymer blend has been evaluated by contact angle measurements and Zisman plots. Even a small addition (5 wt%) of the fluorinated copolymer to the acrylic component has been found very effective in lowering the surface tension. The outermost surface composition has been investigated by XPS technique, confirming the strong fluorine enrichment. Furthermore, SEM and EDX analyses have been performed on cross-sectioned films, showing that in the above polymer blends macrophase surface segregation has originated a thick layer made of fluorinated copolymer close to the air-polymer interface.

RE.CNT 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 25 OF 36 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 2001:67102 CAPLUS  
DN 135:46560

TI Synthesis of perfluoropolyethers having a functional group at the chain end and their adsorption properties  
AU Kondo, Yukishige; Izawa, Teiji; Kawase, Tokuzo; Yoshino, Norio  
CS Department of Industrial Chemistry, Science University of Tokyo, Tokyo-to, Shinjuku-ku, Kanrakuzaka, 162-8601, Japan  
SO Shikizai Kyokaishi (2000), 73(11), 529-534  
CODEN: SKYOA0; ISSN: 0010-180X  
PB Shikizai Kyokai  
DT Journal  
LA Japanese  
AB New perfluoropolyethers (PFPE) containing an amino or an amide group at the chain end,  $F(CF_2CF_2CF_2O)_nCF_2CF_2 - Y$  (Y, functional group) have been synthesized and their adsorption properties on silica gel and diamond powder have been investigated by thermogravimetric (TG) anal. and XPS (XPS) measurement. The primary PFPE amide exhibits the highest adsorption amount on silica gel among synthesized PFPEs. It is found that PFPE amide strongly interacts with silica gel surfaces compared with PFPE amine. On the other hand, the highest adsorption amount on diamond powder is obtained for the secondary PFPE amide having a Me group. The friction coefficient of aluminum plate decreases by the treatment with PFPEs. Almost no dependence of the functional group on the coefficient is found.

L5 ANSWER 26 OF 36 CAPLUS COPYRIGHT 2007 ACS on STN

AN 2000:9849 CAPLUS

DN 132:167693

TI Acrylic polyester resins containing perfluoropolyethers structures: synthesis, characterization, and photopolymerization

AU Bongiovanni, R.; Malucelli, G.; Messori, M.; Pilati, F.; Priola, A.; Tonelli, C.; Toselli, M.

CS Dipartimento di Scienza dei Materiali e Ingegneria Chimica, Politecnico di Torino, Turin, 10129, Italy

SO Journal of Applied Polymer Science (2000), 75(5), 651-659

CODEN: JAPNAB; ISSN: 0021-8995

PB John Wiley & Sons, Inc.

DT Journal

LA English

AB Poly( $\epsilon$ -caprolactone-*b*- perfluoropolyether -*b*- $\epsilon$ -caprolactone) (PCL- PFPE-PCL) block copolymers having different PCL block lengths and end-capped with methacrylate groups were prepared and characterized. Spectroscopic analyses confirmed the expected mol. structure of the products. After UV curing, the films revealed the presence of two amorphous phases, corresponding to fluorinated and hydrogenated moieties, resp. The material containing long PCL blocks showed also a crystalline phase. Surface properties of the UV-cured films were evaluated: The surfaces have a very high hydrophobic character in spite of the presence of many polar OH groups present in the polymeric network and a high hysteresis in wetting. An enrichment of fluorine at the air-side surface was shown by contact-angle measurements, except when long PCL sequences are present. The  $\theta_{adv}$  angles decreased by increasing the content of PCL, i.e., by decreasing the content of fluorine.

RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 27 OF 36 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1999:550853 CAPLUS

DN 131:291822

TI Synthesis of Cadmium Sulfide Q Particles in Water-in-CO<sub>2</sub> Microemulsions

AU Holmes, Justin D.; Bhargava, Prashant A.; Korgel, Brian A.; Johnston, Keith P.

CS Department of Chemical Engineering and the Texas Materials Institute, The University of Texas, Austin, TX, 78712, USA

SO Langmuir (1999), 15(20), 6613-6615

CODEN: LANGD5; ISSN: 0743-7463

PB American Chemical Society

DT Journal

LA English

AB Semiconductor nanoparticles of cadmium sulfide were synthesized in ammonium perfluoropolyether (PFPE-NH<sub>4</sub>) stabilized water-in-CO<sub>2</sub> microemulsions. The particle size was tuned by varying the water-to-surfactant molar ratio (w<sub>0</sub>): w<sub>0</sub> ratios of 5 and 10 yielded nanocrystals with exciton energies of 3.86 and 3.09 eV, corresponding to mean particle radii of 0.9 and 1.8 nm, resp. These exciton energies are significantly higher than the bulk band gap energy for CdS (2.45 eV) due to quantum confinement effects. Effectively, w<sub>0</sub> controls the size of the compartmentalized water droplets in which the particles grow.

RE.CNT 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 28 OF 36 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1999:340214 CAPLUS

DN 131:170652

TI Linear perfluoropolyether difunctional oligomers: chemistry, properties and applications

AU Tonelli, Claudio; Gavezotti, Piero; Strepparola, Ezio

CS Centro Ricerche e Sviluppo, Ausimont S.p.A., Bollate, Milan, 20021, Italy

SO Journal of Fluorine Chemistry (1999), 95(1-2), 51-70

CODEN: JFLCAR; ISSN: 0022-1139

PB Elsevier Science S.A.

DT Journal; General Review

LA English

AB A review, with .apprx.38 refs., on synthesis, properties, and potential applications of telechelic perfluoropolyether oligomers (PFPE). Preparation routes of fluorinated derivative of structure Rh-CF<sub>2</sub>(OCF<sub>2</sub>)<sub>q</sub>(OCF<sub>2</sub>CF<sub>2</sub>)<sub>p</sub>OCF<sub>2</sub>-Rh by condensation or nucleophilic reactions starting from PFPE precursors bearing carboxylic or alc. functional groups are described. The Me ester derivative ZDEAL and the corresponding alc. ZDOL are key precursors for derivs. bearing functional groups of different nature or unreactive end-capped segments. Synthetic routes were explored and compared with conventional hydrogenated mol. reactions; the related mechanisms were elucidated. The yield, selectivity, and purity of the perfluoropolyether oligomers are generally good and the properties can be easily fine-tuned by varying structural parameters. Chemical and phys. properties, e.g., surface tension, kinematic viscosity, refractive index, etc., are described and potential applications are briefly discussed, including lubrication of magnetic recording media, anti-wear and anti-rust additives for lubricants, etc.

RE.CNT 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 29 OF 36 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1999:46624 CAPLUS

DN 130:196352

TI Organic Synthesis in Water/Carbon Dioxide Emulsions

AU Jacobson, Gunilla B.; Lee, C. Ted, Jr.; daRocha, Sandro. R. P.; Johnston, Keith P.

CS Department of Chemical Engineering, University of Texas, Austin, TX, 78712-1062, USA

SO Journal of Organic Chemistry (1999), 64(4), 1207-1210

CODEN: JOCEAH; ISSN: 0022-3263

PB American Chemical Society

DT Journal

LA English

AB The synthetic reaction between a hydrophobe, benzyl chloride, and a hydrophilic nucleophile, KBr, is reported in water-in-carbon dioxide (w/c) and carbon dioxide-in-water (c/w) emulsions. Emulsions containing equal amts.

of water and CO<sub>2</sub> were formed with both anionic perfluoropolyether ammonium carboxylate (PFPE COO-NH<sub>4</sub><sup>+</sup>) and nonionic poly(dimethylsiloxane)-g-poly(ethylene oxide) and poly(butylene oxide)-b-poly(ethylene oxide) surfactants, without the need for any added cosolvent. Higher yields of benzyl bromide were obtained in w/c and c/w emulsions (41-47%) as compared to water-in-octane emulsions (33%). Yields were much higher than in a previous study of the same reaction in a w/c microemulsion (Jacobson et al. J. Organic Chemical, following paper in this issue), since the much larger amount of water in the emulsion allowed for a greater excess of KBr.

RE.CNT 27      THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5      ANSWER 30 OF 36    CAPLUS    COPYRIGHT 2007 ACS on STN

AN      1999:46623    CAPLUS

DN      130:196385

TI      Organic Synthesis in Water/Carbon Dioxide Microemulsions

AU      Jacobson, Gunilla B.; Lee, C. Ted, Jr.; Johnston, Keith P.

CS      Department of Chemical Engineering, University of Texas, Austin, TX, 78712, USA

SO      Journal of Organic Chemistry (1999), 64(4), 1201-1206

CODEN: JOCEAH; ISSN: 0022-3263

PB      American Chemical Society

DT      Journal

LA      English

AB      Nucleophilic substitution reactions were performed in H<sub>2</sub>O/CO<sub>2</sub> (w/c) microemulsions formed with an anionic perfluoropolyether ammonium carboxylate (PFPE COO-NH<sub>4</sub><sup>+</sup>) surfactant. These reactions between hydrophilic nucleophiles and hydrophobic substrates were accomplished in an environmentally benign microemulsion without requiring toxic organic solvents or phase transfer catalysts. For the synthesis of benzyl bromide from benzyl chloride and KBr, the yield was an order of magnitude higher in w/c microemulsions vs. conventional water-in-oil (w/o) microemulsions. Benzoyl chloride and p-nitrophenyl chloroformate were hydrolyzed in w/c microemulsions with rate consts. an order of magnitude faster than those in w/o microemulsions.

RE.CNT 46      THERE ARE 46 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5      ANSWER 31 OF 36    CAPLUS    COPYRIGHT 2007 ACS on STN

AN      1997:435412    CAPLUS

DN      127:136438

TI      UV-curable systems containing perfluoropolyether structures.  
Synthesis and characterization

AU      Priola, Aldo; Bongiovanni, Roberta; Malucelli, Giulio; Pollicino, Antonino; Tonelli, Claudio; Simeone, Giovanni

CS      Dipartimento Scienza Materiali Ingegneria Chimica, Politecnico Torino, Turin, I-10129, Italy

SO      Macromolecular Chemistry and Physics (1997), 198(6), 1893-1907

CODEN: MCHPES; ISSN: 1022-1352

PB      Huethig & Wepf

DT      Journal

LA      English

AB      The synthesis of new functionalized macromers containing perfluoropolyether structures (PFPE) is reported. They are obtained by reaction of bis-CH<sub>2</sub>OH-terminated PFPE with isocyanato-Et methacrylate (EIM), giving rise to the formation of perfluoropolyether bisurethane methacrylate (PFEUMA) oligomers. The products are characterized by NMR and FTIR analyses. The thermal behavior reveals 2 amorphous phases, corresponding to the fluorinated and the hydrogenated moieties, while a crystalline phase can be present depending on the macromer structure. The functionalized macromers are UV-cured in the presence of a photoinitiator and the complete disappearance of the

double bonds is obtained. The cured films are characterized by differential scanning calorimetry and dynamic mech. thermal anal. confirming the presence of a multiphasic structure. Moreover the optical properties and the surface properties of the cured systems are investigated and discussed.

L5 ANSWER 32 OF 36 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1995:391278 CAPLUS

DN 123:114305

TI Synthesis of perfluoropolyether thin films using an excimer laser

AU Sugita, Kyoko; Majima, Tetsuro

CS RIKEN, Wako, Japan

SO Reza Kagaku Kenkyu (1994), 16, 86-8

CODEN: RKAKDK; ISSN: 0289-8411

PB Rikagaku Kenkyusho

DT Journal

LA Japanese

AB Thin films of perfluoropolyether (PFPE) were synthesized directly on the surface of substrates by laser-induced oxidative polymerization of a gaseous mixture of hexafluoropropene (C3F6) and oxygen (O2). Quant. analyses of volatile products (CF2O and CF3CFO with a ratio of 1:1) and PFPE thin films suggest that the PFPE film is initially formed, the thickness increases with increasing number of laser pulses, and the film has mainly CF2O groups in the main chain via a reaction of C3F6-O2 on the surface.

L5 ANSWER 33 OF 36 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1994:656428 CAPLUS

DN 121:256428

TI Synthesis of perfluoropolyether thin film by polymerization induced with irradiation of a CO2 laser

AU Sugita, Kyoko; Nakao, Aiko; Furusawa, Kenji; Majima, Tetsuro

CS Rikagaku Kenkyusho, Wako, Japan

SO Reza Kagaku Kenkyu (1993), 15, 113-15

CODEN: RKAKDK; ISSN: 0558-471X

DT Journal

LA Japanese

AB Perfluoropolyether (PFPE) thin film was synthesized with irradiation of a mixture of perfluoropropylene oxide (C3F6O, 25 Torr) and

O (75 Torr) at room temperature by using a TEA CO2 laser with 979.71-1077.30 cm<sup>-1</sup> of laser wavenumber, 230-420 J·cm<sup>-2</sup> of fluence at focus, and 250-1500 of pulse number. Thickness of the PFPE film was estimated to be in nm range, and increased with increasing pulse number and fluence. The thickness was changed with the laser wavenumber. The formation of PFPE thin film is explained by an ionic polymerization mechanism involving an ionic initiator generated in the initial reaction of vibrationally excited C3F6O and O.

L5 ANSWER 34 OF 36 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1994:281022 CAPLUS

DN 120:281022

TI An adsorption of perfluoropolyethers on silica surfaces for thin film magnetic disk overcoats

AU Yanagisawa, M.

CS Funct. Devices Res. Lab., NEC Corp., Kawasaki, 216, Japan

SO Tribology Transactions (1993), 36(3), 484-90

CODEN: TRTRE4; ISSN: 1040-2004

DT Journal

LA English

AB Perfluoropolyethers (PFPEs) have been widely used as an excellent lubricant on magnetic disks. Sol-gel SiO2 was applied as a protective overcoat for plated magnetic disks. Adsorption of PFPEs on the surface of

a protective overcoat is an important issue in evaluating lubrication characteristics, such as coefficient of friction, wear resistance, volatility, spin-off, etc. for magnetic disks. Mol. configuration and magnitude of adsorption between lubricants and protective overcoats were measured, using various anal. methods, i.e., diffuse reflectance IR spectroscopy, polarization reflection IR spectroscopy, refractive index anal., flow micro-calorimetry, etc. Functional groups in PFPE mols. adsorb to silanol groups on the sol-gel SiO<sub>2</sub> surface. The main chain of PFPE mol. orients parallel to the sol-gel SiO<sub>2</sub> surface. The thickness of adsorbed PFPE agrees well with the diameter of the PFPE main chain. The heat of adsorption increases with increasing hydrophilic affinity of functional groups. The heat of adsorption decreases with increasing baking temperature of sol-gel SiO<sub>2</sub>, which corresponds to the decrease in silanol group d.

L5 ANSWER 35 OF 36 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1992:531656 CAPLUS

DN 117:131656

TI Synthesis of polyesters-perfluoropolyethers block copolymers.

3. Use of various telechelic perfluoropolyethers

AU Pilati, F.; Toselli, M.; Vallieri, A.; Tonelli, C.

CS Fac. Ing., Univ. Bologna, Bologna, I-40136, Italy

SO Polymer Bulletin (Berlin, Germany) (1992), 28(2), 151-7

CODEN: POBUDR; ISSN: 0170-0839

DT Journal

LA English

AB Multiblock -(A-B)<sub>n</sub>- copolymers containing polyester segments together with perfluoropolyether (PFPE) segments were prepared by polymerizing di-Me terephthalate (I), or an equimolar mixture of I and di-Me isophthalate, with ethylene glycol in the presence of different telechelic perfluoropolyethers in various amts. (5-30 wt%), using Ti(OBu)<sub>4</sub> as the catalyst. Fomblin ZDEAL (a -COOCH<sub>3</sub>-terminated PFPE), Fomblin ZDOL (a PFPE having -CH<sub>2</sub>OH terminal groups), and Fomblin ZDOLTX (a PFPE having -CH<sub>2</sub>O(CH<sub>2</sub>CH<sub>2</sub>O)<sub>y</sub>H terminal groups) were used as telechelic PFPEs. Fomblin ZDOLTX gave the best results: the highest yield in block copolymer (less sensitive to hydrolysis with respect to block copolymers prepared from the other PFPEs), a longer average length of polyester segments, and a relatively low fraction of PFPE lost by distillation during polymerization

L5 ANSWER 36 OF 36 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1990:592068 CAPLUS

DN 113:192068

TI Synthesis of poly(ethylene terephthalate) in the presence of perfluoropolyethers. II. Effect of various catalysts

AU Pilati, F.; Manaresi, P.; Toselli, M.

CS Dip. Chim. Appl. Sci. Mater., Univ. Bologna, Bologna, 40136, Italy

SO Journal of Polymer Science, Part A: Polymer Chemistry (1990), 28(11), 3047-54

CODEN: JPACEC; ISSN: 0887-624X

DT Journal

LA English

AB Di-Me terephthalate and ethylene glycol were copolymerized to poly(ethylene terephthalate) (I) in the presence of perfluoropolyethers (PFPE) using various catalysts. The polymers were carried out at high temperature by the usual two-stage method and the effect of the fluorinated compounds on the polymerization was investigated. Selective extns. were performed to estimate the

fraction of PFPE bonded to I. In the presence of a telechelic PFPE macromer bearing Me ester end groups the polymerization could only be carried out when the fluorinated macromer was added after the first stage was complete, because of the strong decrease of the transesterification rate with all the catalysts used. Polymers were therefore performed by adding 10% PFPE at the end of the first

stage; .apprx.30% of the amount of PFPE in the final products was bonded to I. In the presence of a PFPE without functional end groups the reaction rate was not decreased in the first stage; however, under the same reaction conditions, the intrinsic viscosity of final I was greatly reduced and the amount of PFPE in the resulting material was well below that initially added and was almost completely extractable, meaning that a very limited fraction of PFPE was bonded to I.